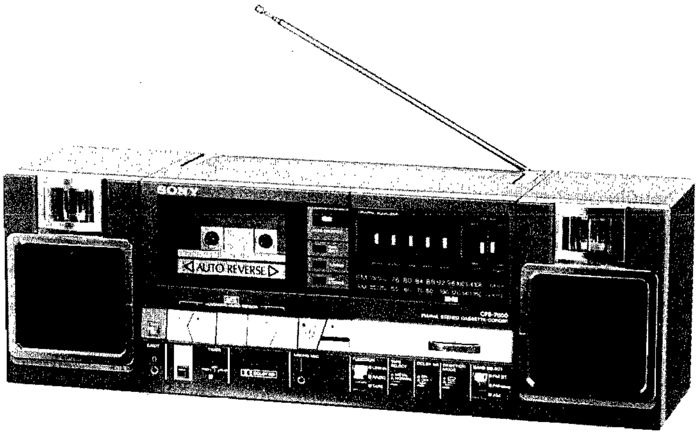
CFS-7000

228-

SERVICE MANUAL

US Model
Canadian Model



SPECIFICATIONS

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION

With 6-ohm loads, both channels driven, from 70–10,000 Hz; rated 5 W per channel minimum RMS power, with no more than 10% total harmonic distortion.

OTHER SPECIFICATIONS

Radio section

Frequency range	FM 87.6–108 MHz AM 530–1,605 kHz (566–187 m)
Antennas	FM: Telescopic antenna AM: Built-in ferrite bar antenna

Tape recorder section and general

Recording system	4-track 2-channel stereo
Fast winding time	Approx. 1 min. 50 sec. with Sony cassette C-60
Frequency response	DOLBY NR OFF • with TYPE IV cassette (Sony METALLIC) 40–15,000 Hz • with TYPE I cassette (Sony BHF or HFX) 40–14,000 Hz
Speakers	Two-way Approx. 10 cm (4 inches) dia. woofers Approx. 2.7 cm (1 1/8 inches) dia. tweeters
Inputs	One mixing microphone input jack (minijack) sensitivity 3 mV (−48 dB) for low impedance microphone Two line input jacks (phono jack) sensitivity 0.1 V (−13.2 dB) input impedance 47 kilohms
Outputs	Two line output jacks (phono jack) load impedance 10 kilohms or higher rated output 0.3 V (−8.2 dB) at load impedance 47 kilohms Two external speaker terminals for 6-ohm to 16-ohm impedance speaker Headphones jack (stereo minijack) for 8–300-ohm impedance headphones
Power requirements	120 V ac, 60 Hz 9 V dc, 6 size D batteries (IEC designation R20) DC IN 9 V jack accepts: DCC-2600 car battery cord (optional) for use on 12 V car battery

— Continued on page 2 —

0dB = 0.775 V

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT
À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

MICROFILM

FM/AM STEREO CASSETTE-CORDER

SONY®

TC 2281

Power consumption	20 W ac
Battery life	Approx. 6 hours (recording) Approx. 2.5 hours (playback) with Eveready No. 1250 Heavy Duty batteries Approx. 10 hours (recording) Approx. 5 hours (playback) with Eveready No. E95 Alkaline batteries
Dimensions	Approx. 510 × 168 × 189 mm (w/h/d) ($20\frac{1}{8} \times 6\frac{5}{8} \times 7\frac{1}{2}$ inches) incl. projecting parts and controls with the carrying handle pushed down
Weight	Approx. 5.3 kg (11 lb 11 oz) incl. batteries

Design and specifications subject to change without notice.

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

CAUTION

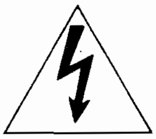
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK,

DO NOT REMOVE COVER (OR BACK).

NO USER-SERVICEABLE PARTS INSIDE.

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

FEATURES

- The auto-reverse function allows you to record on both sides of the cassette and repeat playback of both sides of the cassette continuously, without turning the cassette over.
- Dolby noise reduction system reduces tape hiss noise.
- 5-band graphic equalizer controls facilitate fine tone adjustment.
- Tape select switch allows you to make optimum recording with standard tapes as well as high-performance metal tapes.
- Two-way speaker system provides dynamic sound.
- Timer switch is provided to turn the unit on and off at times preset on an optional timer.

SAFETY CHECK-OUT (US Model)

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

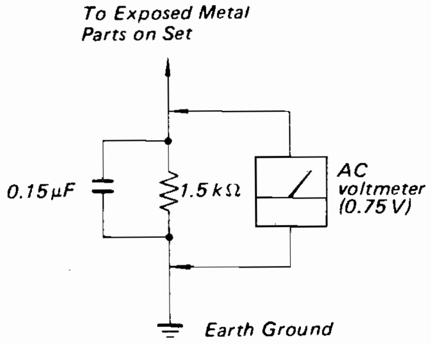
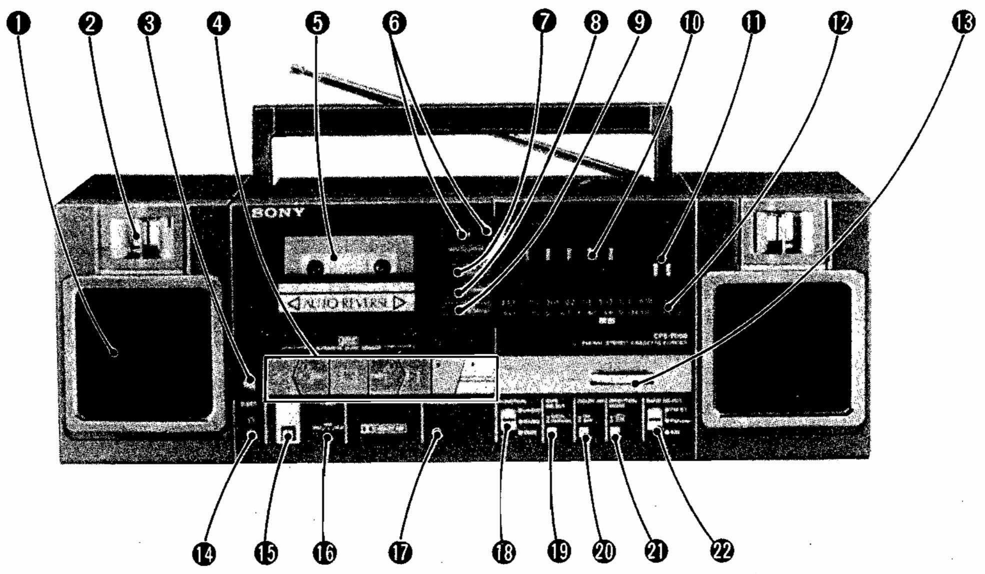
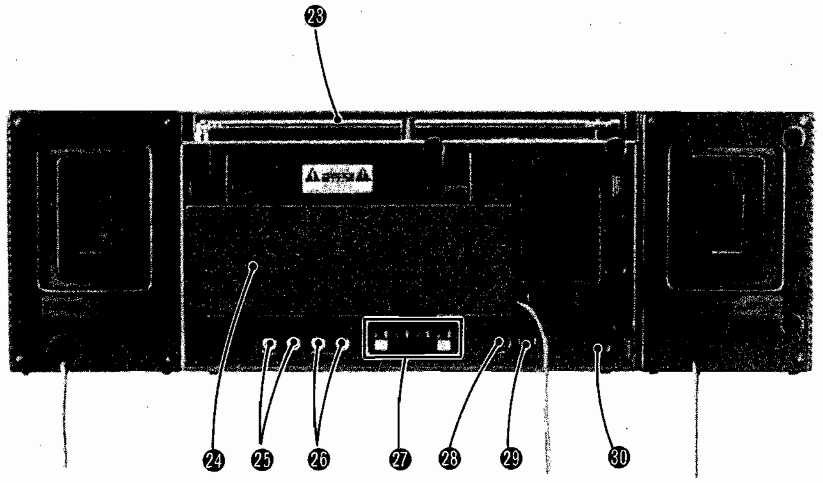


Fig. A. Using an AC voltmeter to check AC leakage.

LOCATION AND FUNCTION OF CONTROLS

The numbers in the photos are keyed to the following explanations.





① Woofer

② Tweeter

③ EJECT lever
Press this lever to open the cassette holder.

④ Tape operation buttons
It is possible to switch directly from one mode to another.

- **◀◀ (fast-reverse):** Press this button to advance the tape rapidly to the left. The indicator of the ◀ REV button flashes. Also used for AMS function.
- **◀ REV (reverse):** Press this button to play back the reverse side of the cassette. The built-in indicator lights up. To record on the reverse side, press this button while pressing the ● button.
- **■ (stop):** Press this button to stop the tape.
- **FWD ▶ (forward):** Press this button to play back the front side of the cassette. The built-in indicator lights up. To record on the front side, press this button while pressing the ● button.
- **▶▶ (fast-forward):** Press this button to advance the tape rapidly to the right. The indicator of the FWD ▶ button flashes. Also used for AMS function.
- **● (record):** Press this button together with the FWD ▶ or ◀ REV button to start recording. The built-in indicator lights up.
- **❙❙ PAUSE:** Press this button to stop the tape for a moment during recording or playback. To restart, press it again.
- **○ REC MUTE (record muting):** Press this button to eliminate unwanted material and to insert a blank space during recording.

⑤ Cassette holder

⑥ TAPE COUNTER and reset button
The tape counter provides a numerical reference point while recording which can be used to index a recorded cassette. To reset to zero, press the reset button.

⑦ OPR/BATT (operation/battery) indicator
This indicator lights up while the unit is in operation. During battery operation, this also shows the battery condition.

⑧ TUNING indicator
Lights up when a signal is tuned in accurately.

⑨ FM STEREO indicator
This indicator will light when an FM stereo program of sufficient signal strength is tuned in.

⑩ GRAPHIC EQUALIZER controls
Slide downwards or upwards to equalize the reproduced sound. When the equalizer is not used, set the controls to 0 (center position).

⑪ VOLUME controls
Slide upwards for more volume: LEFT for left channel and RIGHT for right channel.

⑫ Frequency scale
Permits reading the received frequency.

⑬ TUNING knob
Turn it to the left for a lower frequency and to the right for a higher one.

⑭ ∩ (headphones) jack
Accepts any headphones with a stereo miniplug. The headphone volume can be adjusted with the VOLUME controls.

⑮ POWER switch
Depress to turn on the power. To turn the power off, press it again.

⑯ TIMER switch
You can set the unit to record or play back at a predetermined time by connceting any commercially available timer.

⑰ MIXING MIC (mixing microphone) jack (minijack)
For connecting a microphone for mixing.

⑱ FUNCTION switch

- **LINE IN:** To listen to or record the sound of the equipment connected to the LINE IN jacks
- **RADIO:** To listen to or record radio programs
- **TAPE:** To play back the tape

⑲ TAPE SELECT switch
Select the type of tape to be used.
Depress the switch (⏏ METAL) for a TYPE IV (metal) tape or TYPE II (CrO_2) tape.
Press to release it (□ NORMAL) for a TYPE I (normal) tape or TYPE III (Fe-Cr) tape.

⑳ DOLBY NR switch
To record with the Dolby NR* (Noise Reduction) process, depress this switch (⏏ ON). To record without the Dolby NR process, press it again (□ OFF).
When playing back, set this switch to the same position used in recording.

*"Dolby" and the double-D symbol are trade marks of the Dolby Laboratories Licensing Corporation. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

㉑ DIRECTION MODE switch
Depress the switch (⏏ ⊂⊃) to record on both sides of a cassette or to repeat playback of both sides of a cassette. Press to release it (□ ⇄) to record or playback the front side or the reverse side of a cassette once only.

㉒ BAND SELECT switch

- **FM ST:** Normally set to this position for FM reception.
- **FM MONO:** Set to this position when it is hard to hear the FM broadcast due to noise.
- **AM:** For AM reception.

㉓ Telescopic antenna
Used for FM reception.

㉔ Battery compartment

㉕ LINE IN (line input) jacks (phono jacks)
For connecting an additional cassette deck to duplicate tapes or for connecting an amplifier to record the sound through the amplifier onto this unit.

㉖ LINE OUT (line output) jacks (phono jacks)
For connecting an additional cassette deck to duplicate a tape or to record the mixed sound of the microphone and the built-in cassette deck.

㉗ Speaker terminals
Connect the speaker system.

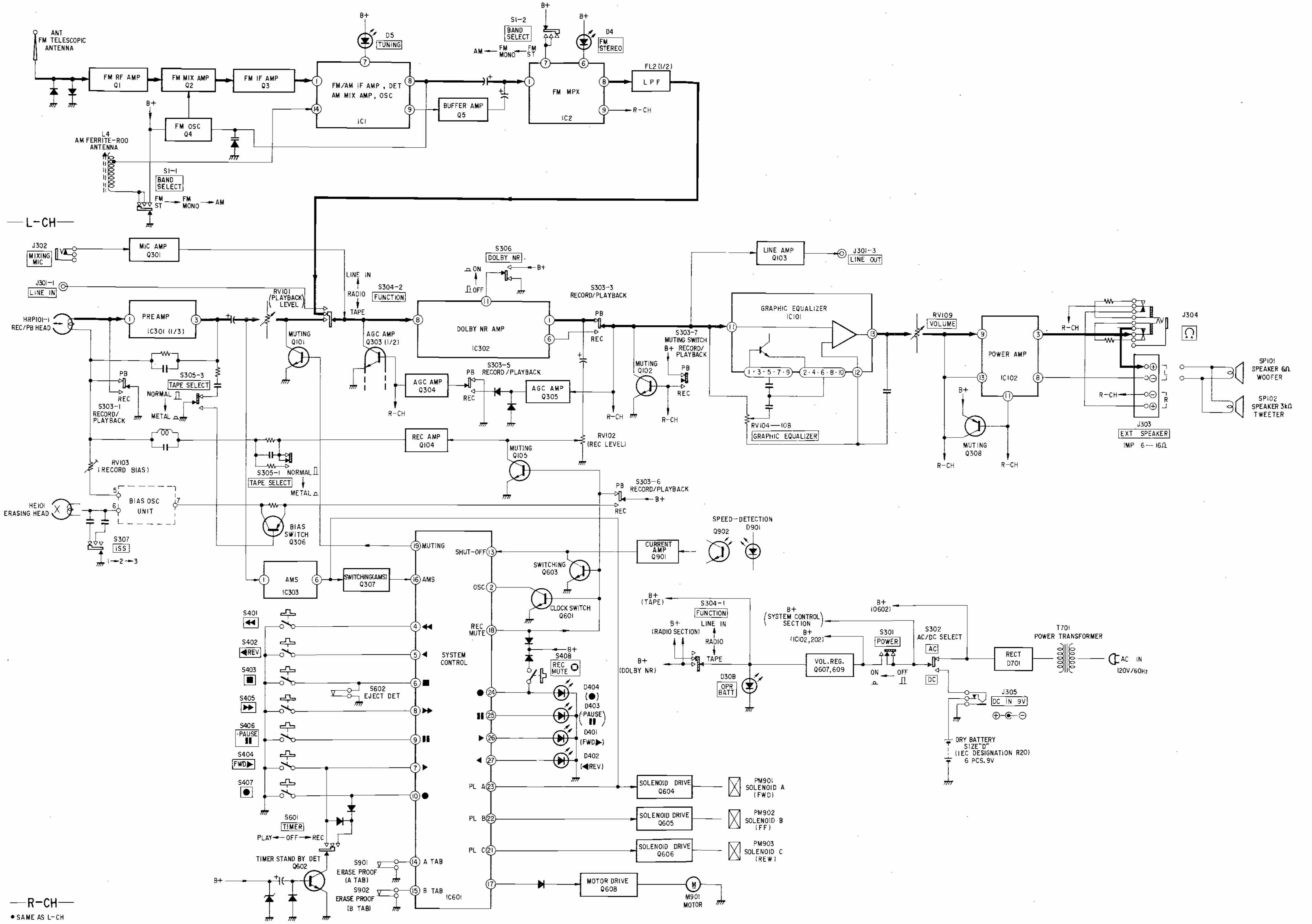
㉘ DC IN (external power input) 9 V jack
For connecting an optional DCC-2600 car battery cord.

㉙ DC/AC selector
When operating the unit on the internal batteries or the car battery, set this selector to DC. When operating on house current, set it to AC.
Note: The CFS-7000 does not operate if this selector is not set properly.

㉚ ISS (interference suppress switch)

SECTION 1
OUTLINE

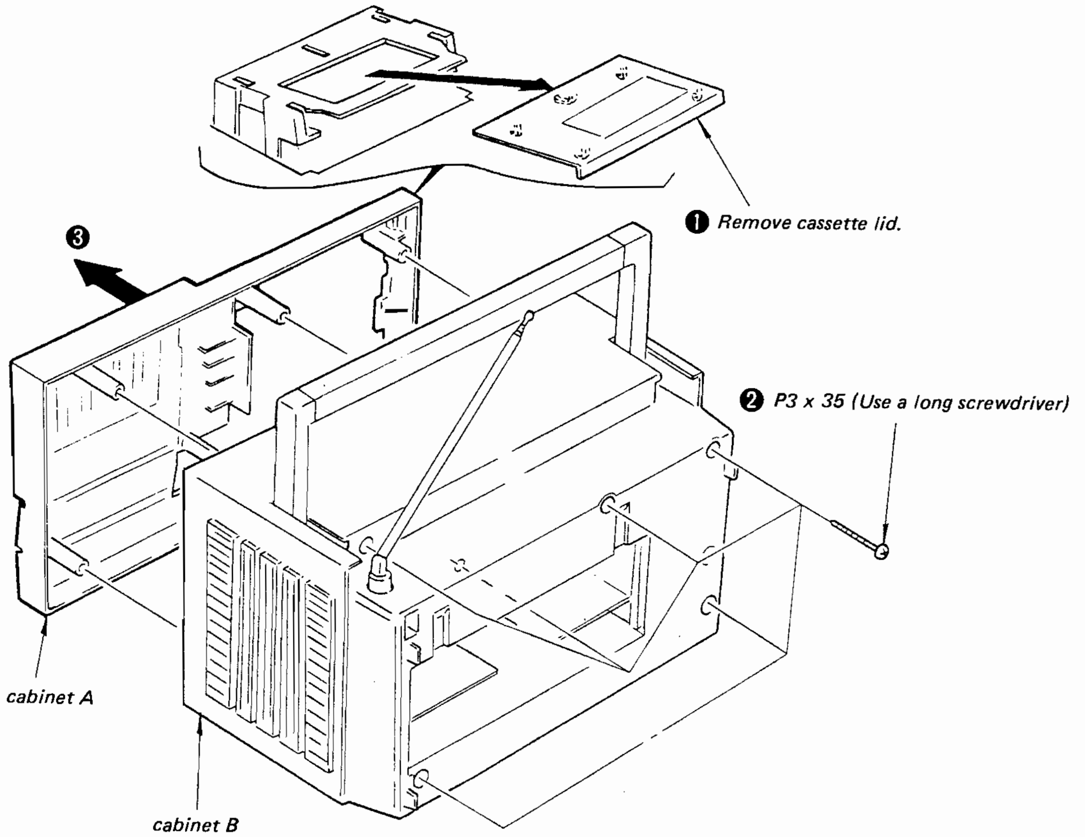
1-1. BLOCK DIAGRAM


ANT FM TELESCOPIC ANTENNA
FM RF AMP Q1
FM MIX AMP Q2
FM IF AMP Q3
FM OSC Q4
L4 AM FERRITE-ROD ANTENNA
S1-1 BAND SELECT
FM ST FM MONO AM
D5 TUNING
FM/AM IF AMP, DET AM MIX AMP, OSC IC1
BUFFER AMP Q5
S1-2 BAND SELECT
AM FM MONO FM ST
D4 FM STEREO
FM MPX IC2
FL2 (1/2) LPF
R-CH
L-CH
J302 MIXING MIC
MIC AMP Q301
J301-1 LINE IN
HRP101-1 REC/PB HEAD
PREAMP IC301 (1/3)
RV101 (PLAYBACK LEVEL)
LINE IN RADIO TAPE
S304-2 FUNCTION
MUTING Q101
AGC AMP Q303 (1/2)
S306 DOLBY NR
ON OFF
DOLBY NR AMP IC302
S303-3 RECORD/PLAYBACK
PB REC
AGC AMP Q304
S303-5 RECORD/PLAYBACK
AGC AMP Q305
S305-3 TAPE SELECT
NORMAL METAL
S303-1 RECORD/PLAYBACK
REC AMP Q104
RV102 (REC LEVEL)
MUTING Q105
RV103 (RECORD BIAS)
S305-1 TAPE SELECT NORMAL METAL
HE101 ERASING HEAD
BIAS OSC UNIT
S307 ISS
BIAS SWITCH Q306
S303-6 RECORD/PLAYBACK
LINE AMP Q103
J301-3 LINE OUT
S303-7 MUTING SWITCH B+ RECORD/PLAYBACK
MUTING Q102
GRAPHIC EQUALIZER IC101
1·3·5·7·9 2·4·6·8·10
RV104—108 GRAPHIC EQUALIZER
RV109 VOLUME
POWER AMP IC102
MUTING Q308
J304
J303 EXT SPEAKER IMP 6—16Ω
SP101 SPEAKER 6Ω WOOFER
SP102 SPEAKER 3kΩ TWEETER
SPEED-DETECTION Q902 D901
CURRENT AMP Q901
AMS IC303
SWITCHING(AMS) Q307
MUTING
AMS
SHUT-OFF
OSC
REC MUTE
SWITCHING Q603
CLOCK SWITCH Q601
SYSTEM CONTROL
S401
S402 REV
S403
S405
S406 PAUSE
S404 FWD
S407
S602 EJECT DET
S408 REC MUTE
D404 (●)
D403 (PAUSE)
D401 (FWD)
D402 (REV)
PL A
PL B
PL C
SOLENOID DRIVE Q604
SOLENOID DRIVE Q605
SOLENOID DRIVE Q606
PM901 SOLENOID A (FWD)
PM902 SOLENOID B (FF)
PM903 SOLENOID C (REW)
S601 TIMER PLAY—OFF—REC
TIMER STAND BY DET Q602
S901 ERASE PROOF (A TAB)
S902 ERASE PROOF (B TAB)
A TAB
B TAB
IC601
MOTOR DRIVE Q608
M901 MOTOR
B+ (TAPE)
S304-1 FUNCTION
B+ (RADIO SECTION)
LINE IN RADIO TAPE
B+ (DOLBY NR)
D308 OPR BATT
B+ (SYSTEM CONTROL SECTION)
B+ (IC102, 202)
S301 POWER
ON OFF
VOL.REG. Q607, 609
B+ (Q602)
S302 AC/DC SELECT
AC DC
RECT D701
T701 POWER TRANSFORMER
AC IN 120V/60Hz
J305 DC IN 9V
DRY BATTERY SIZE "D" (IEC DESIGNATION R20) 6 PCS. 9V
R-CH
• SAME AS L-CH

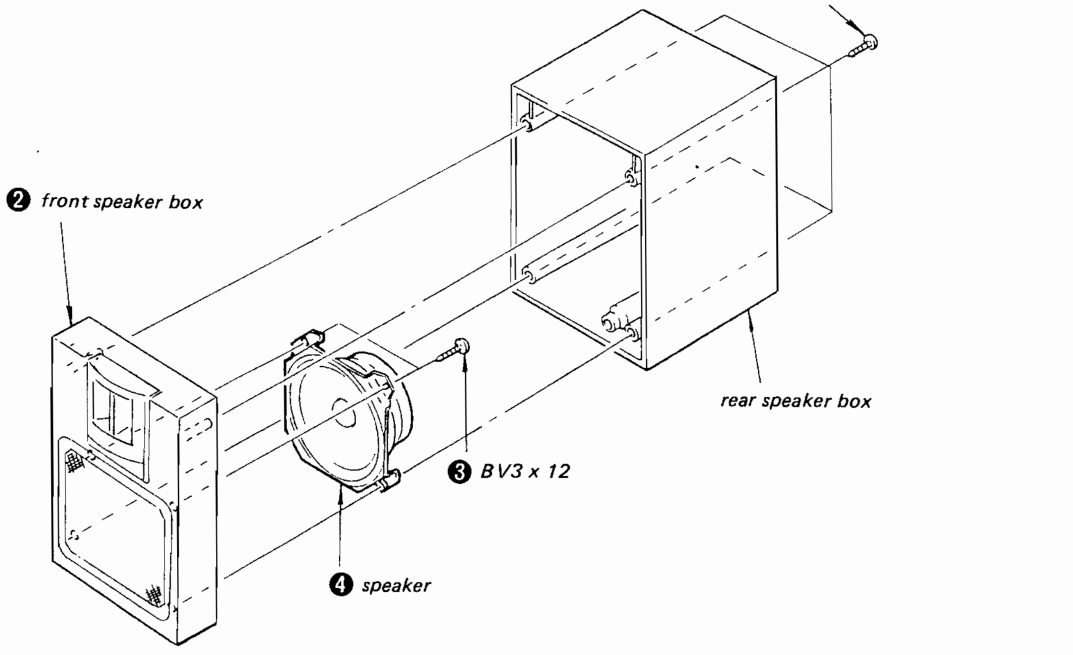
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

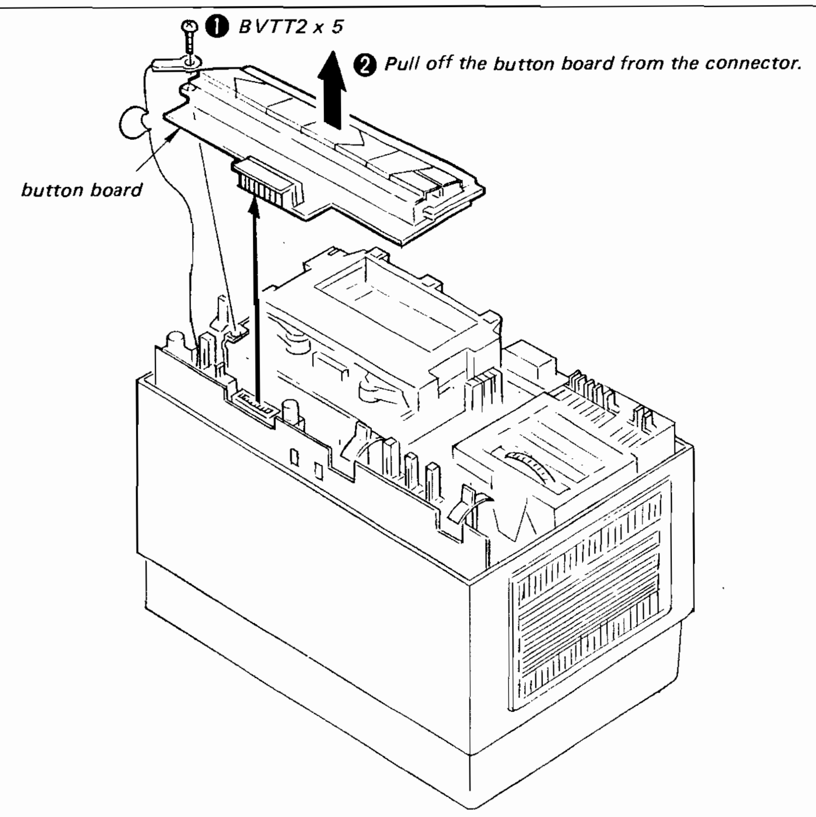
CABINET A


❶ Remove cassette lid.
❷ P3 x 35 (Use a long screwdriver)
❸
cabinet A
cabinet B

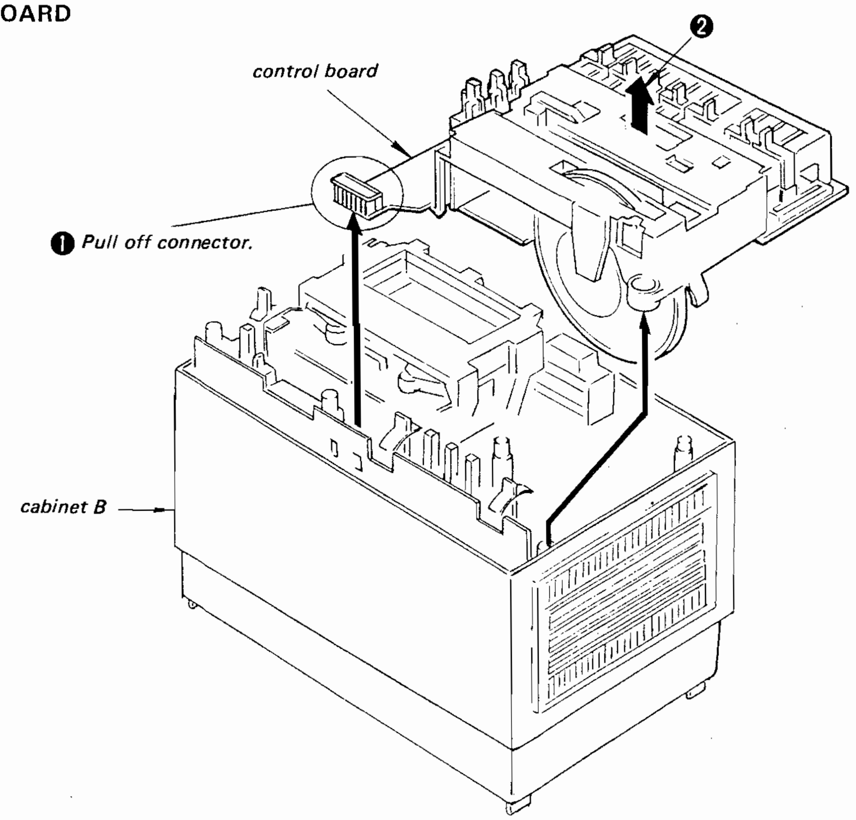
SPEAKER


❶ BV3 x 12 (Use a long screwdriver)
❷ front speaker box
rear speaker box
❸ BV3 x 12
❹ speaker

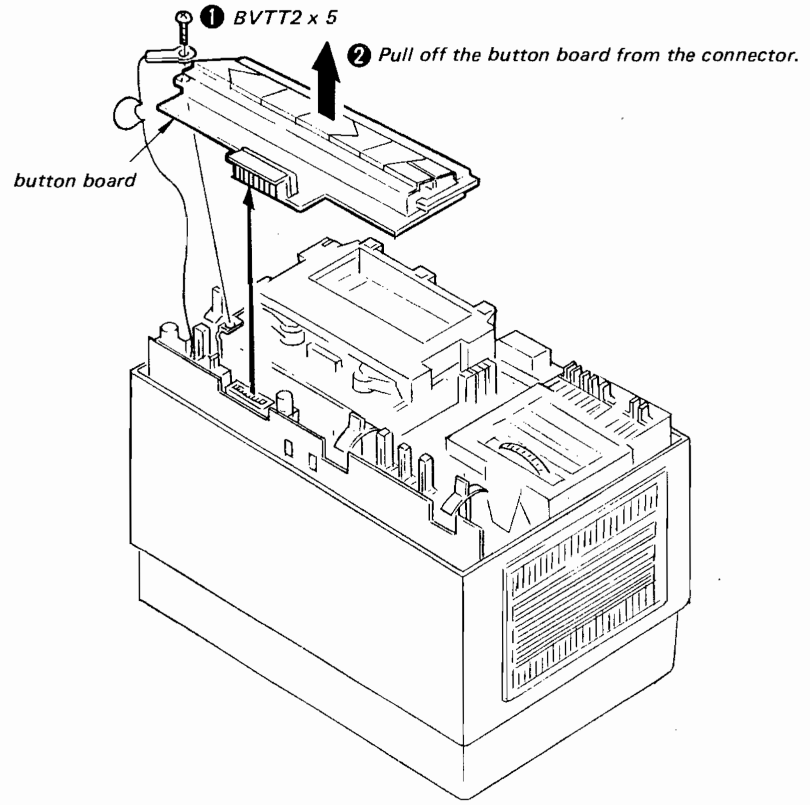
BUTTON BOARD


❶ BVTT2 x 5
❷ Pull off the button board from the connector.
button board

CONTROL BOARD


❷
control board
❶ Pull off connector.
cabinet B

BUTTON BOARD

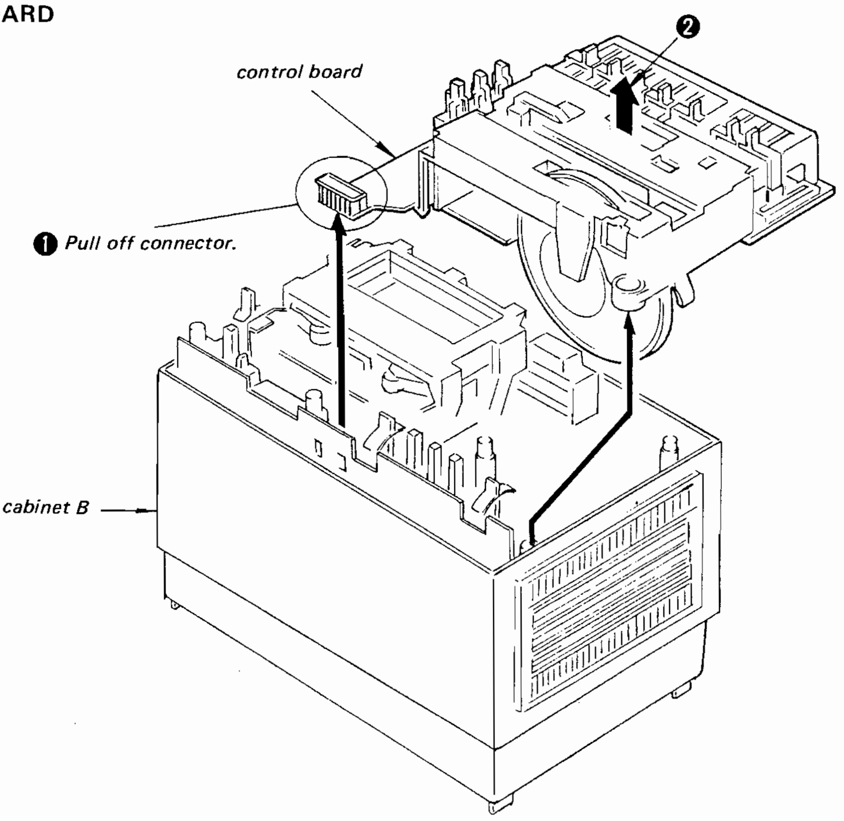


❶ *BVTT2 x 5*

❷ *Pull off the button board from the connector.*

button board

CONTROL BOARD

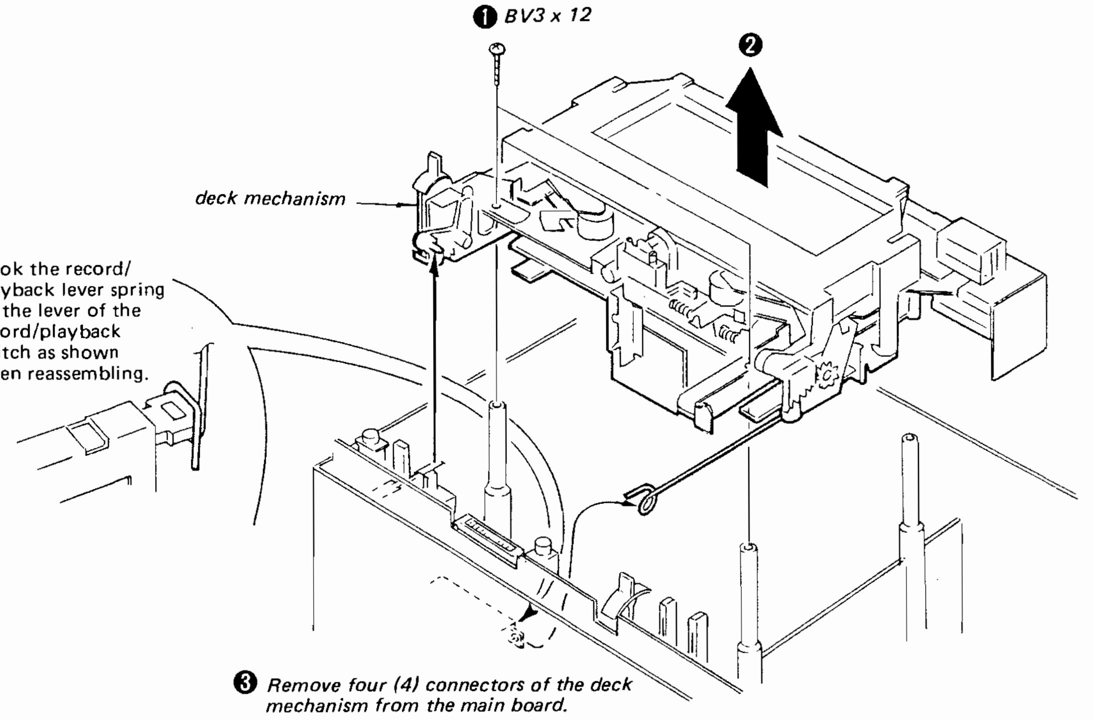


❶ *Pull off connector.*

❷

control board
cabinet B

DECK MECHANISM



❶ *BV3 x 12*

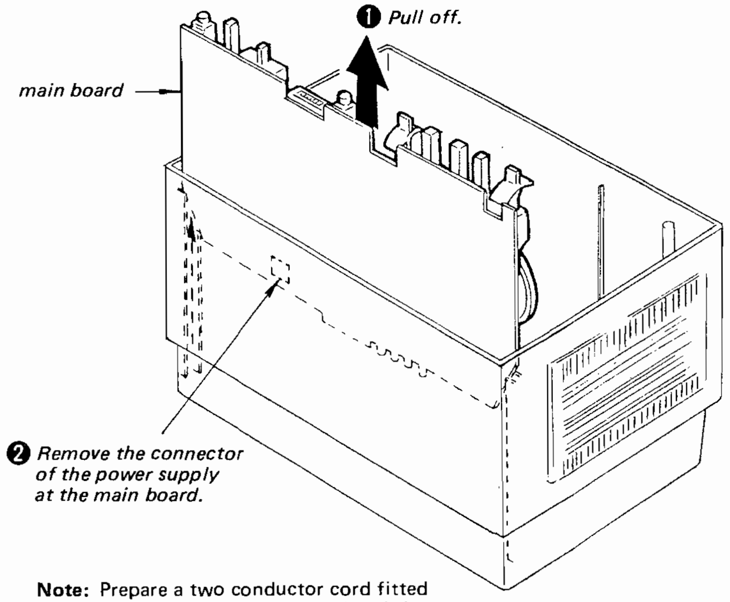
❷

❸ *Remove four (4) connectors of the deck mechanism from the main board.*

Note: Hook the record/playback lever spring on the lever of the record/playback switch as shown when reassembling.

deck mechanism

MAIN BOARD



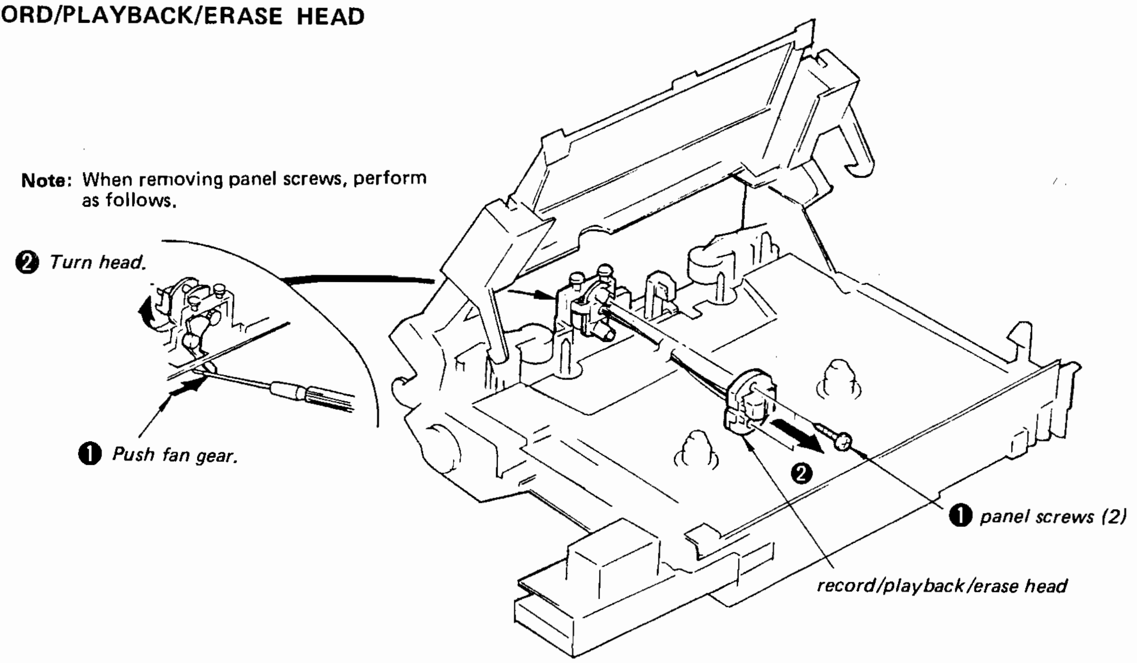
❶ *Pull off.*

❷ *Remove the connector of the power supply at the main board.*

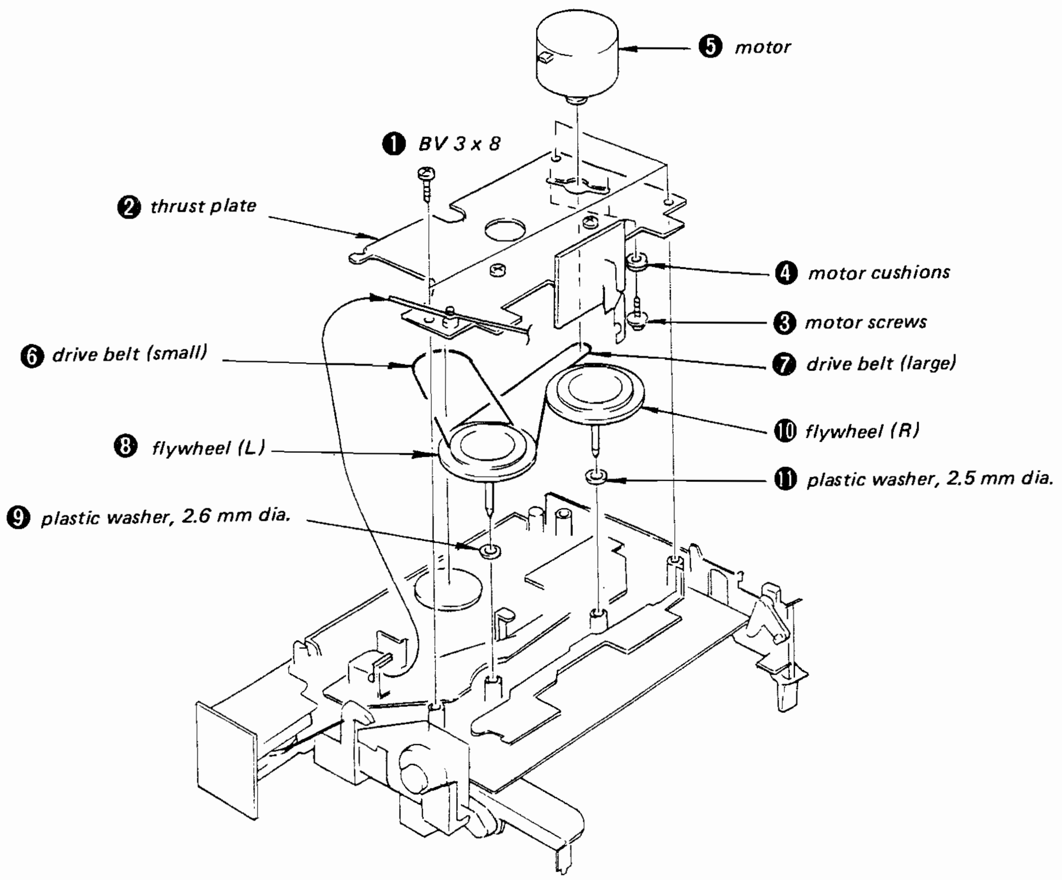
Note: Prepare a two conductor cord fitted with suitable connectors when it is needed to operate the set after main-board removal.

RECORD/PLAYBACK/ERASE HEAD

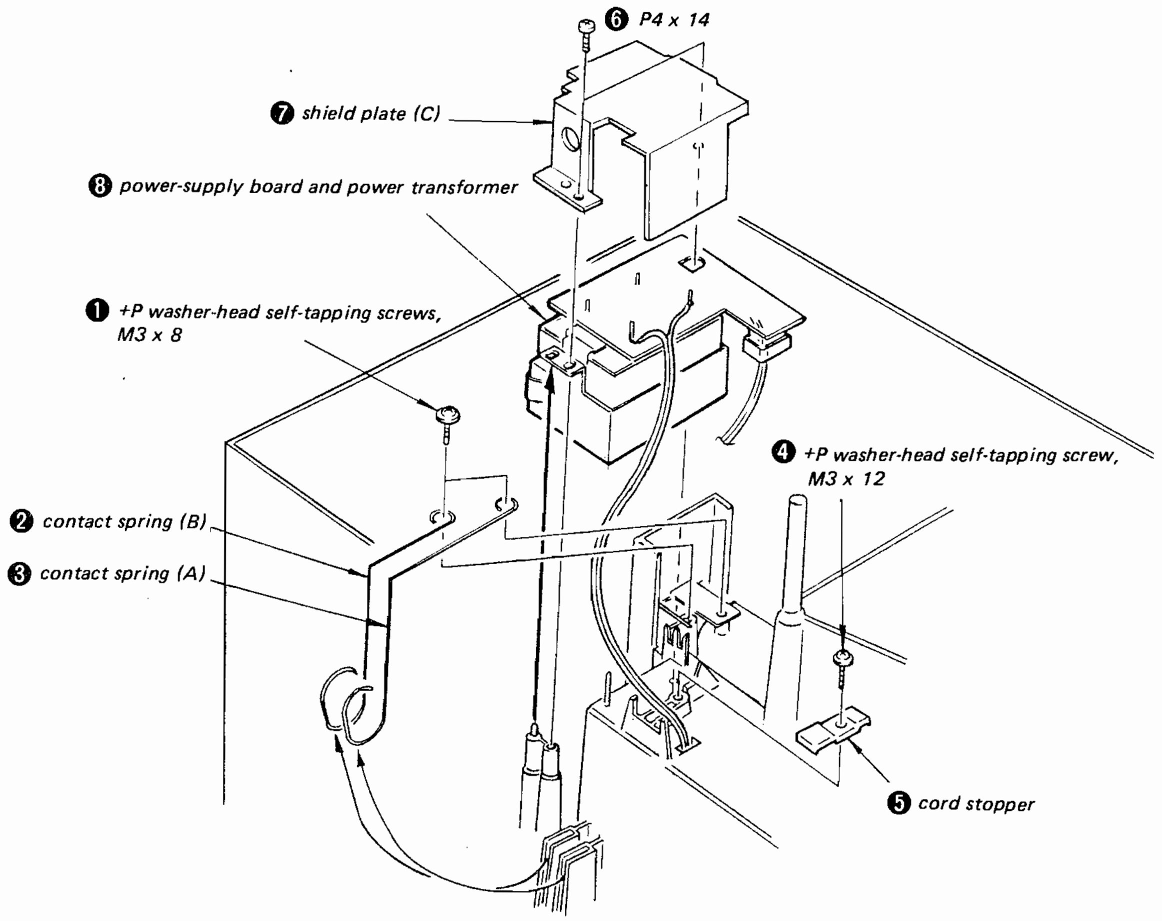
Note: When removing panel screws, perform as follows.


❷ Turn head.
❶ Push fan gear.
❷
❶ panel screws (2)
record/playback/erase head

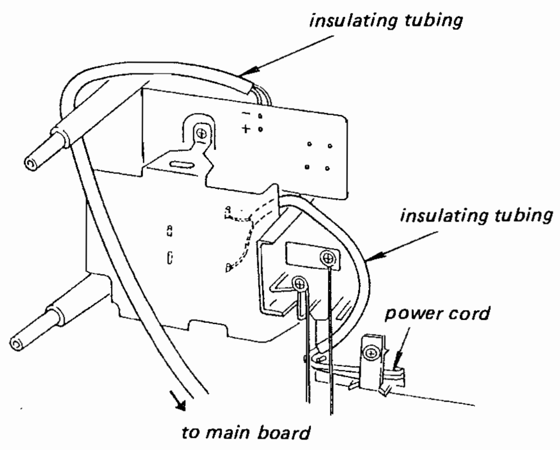
THRUST PLATE, MOTOR and FLYWHEEL


❺ motor
❶ BV 3 x 8
❷ thrust plate
❹ motor cushions
❸ motor screws
❻ drive belt (small)
❼ drive belt (large)
❿ flywheel (R)
❽ flywheel (L)
⓫ plastic washer, 2.5 mm dia.
❾ plastic washer, 2.6 mm dia.

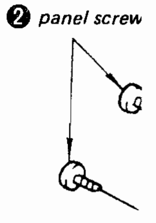
POWER SUPPLY BOARD and POWER TRANSFORMER


❻ P4 x 14
❼ shield plate (C)
❽ power-supply board and power transformer
❶ +P washer-head self-tapping screws, M3 x 8
❹ +P washer-head self-tapping screw, M3 x 12
❷ contact spring (B)
❸ contact spring (A)
❺ cord stopper

Note: When reassembling, route the power cord and lead wires as shown below.

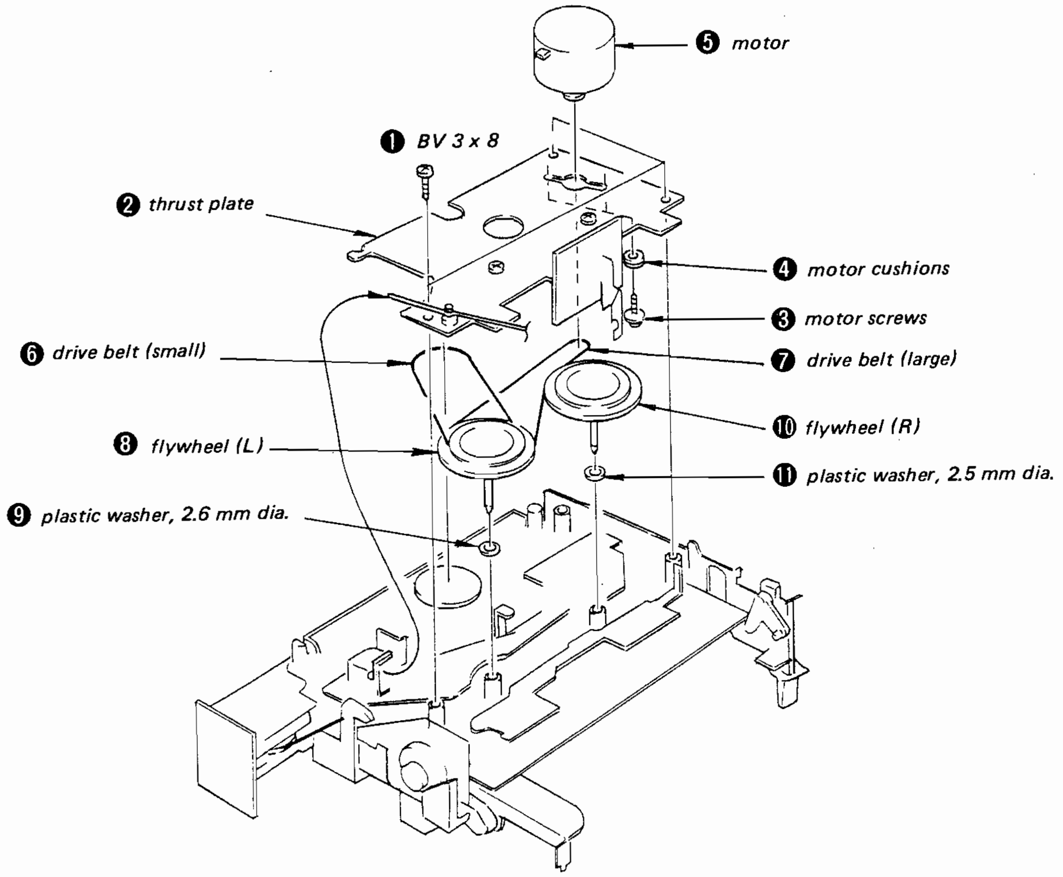

insulating tubing
insulating tubing
power cord
to main board

INSTAL

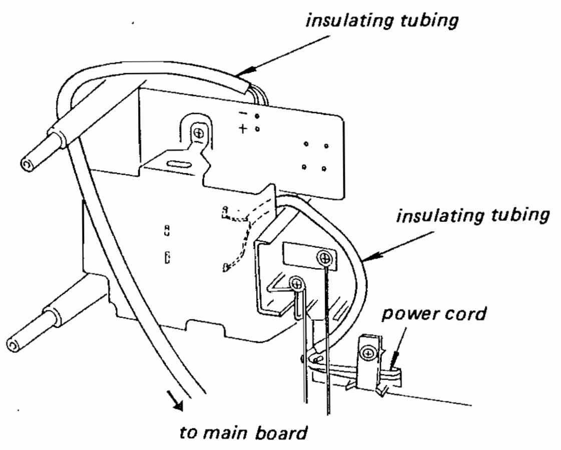

❷ panel screw

❸

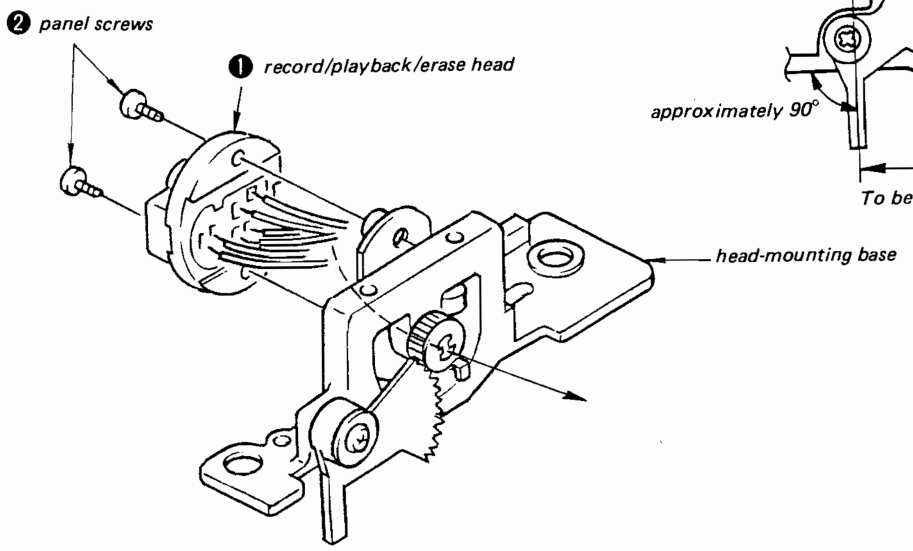
THRUST PLATE, MOTOR and FLYWHEEL


❺ motor
❶ BV 3 x 8
❷ thrust plate
❹ motor cushions
❸ motor screws
❻ drive belt (small)
❼ drive belt (large)
❿ flywheel (R)
❽ flywheel (L)
⓫ plastic washer, 2.5 mm dia.
❾ plastic washer, 2.6 mm dia.

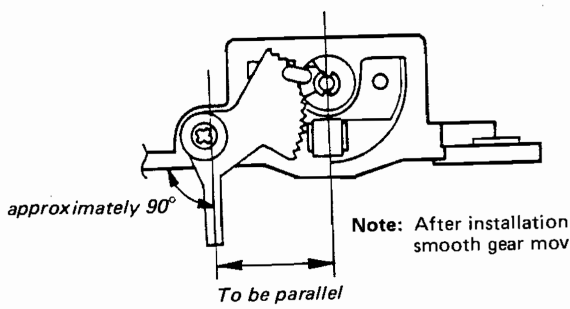
Note: When reassembling, route the power cord and lead wires as shown below.


insulating tubing
insulating tubing
power cord
to main board

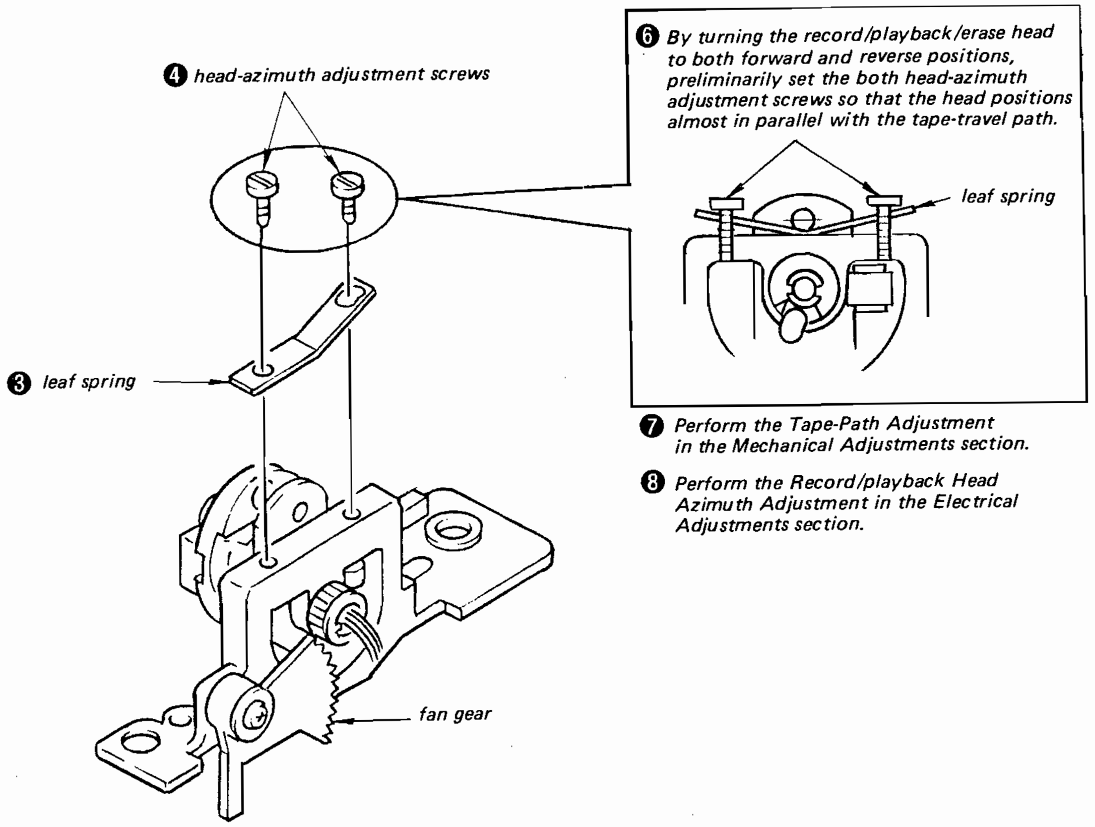
INSTALLING THE RECORD/PLAYBACK/ERASE HEAD


❷ panel screws
❶ record/playback/erase head
head-mounting base

Installation of Fan Gear


approximately 90°
To be parallel

Note: After installation, check for a smooth gear movement.


❹ head-azimuth adjustment screws
leaf spring
❸ leaf spring
fan gear

❻ *By turning the record/playback/erase head to both forward and reverse positions, preliminarily set the both head-azimuth adjustment screws so that the head positions almost in parallel with the tape-travel path.*

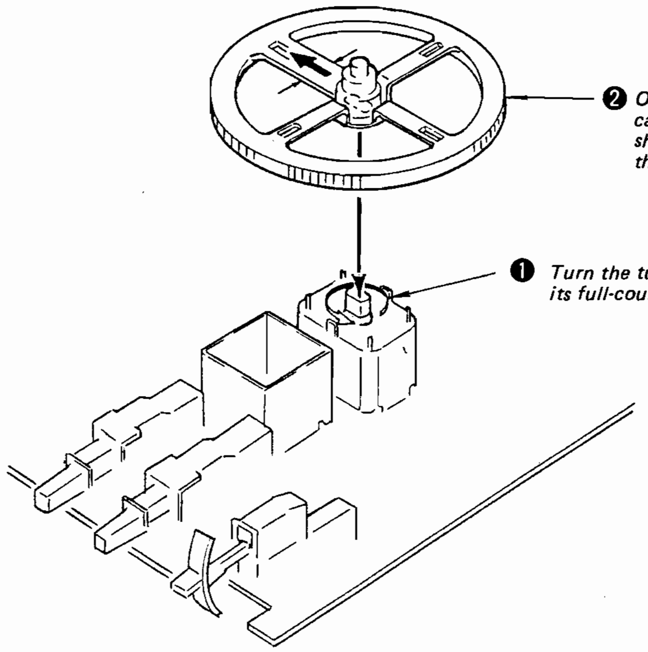
❼ *Perform the Tape-Path Adjustment in the Mechanical Adjustments section.*

❽ *Perform the Record/playback Head Azimuth Adjustment in the Electrical Adjustments section.*

❺ *Reinstall head-mounting base on the head chassis.*

REINSTALLING THE CONTROL BOARD

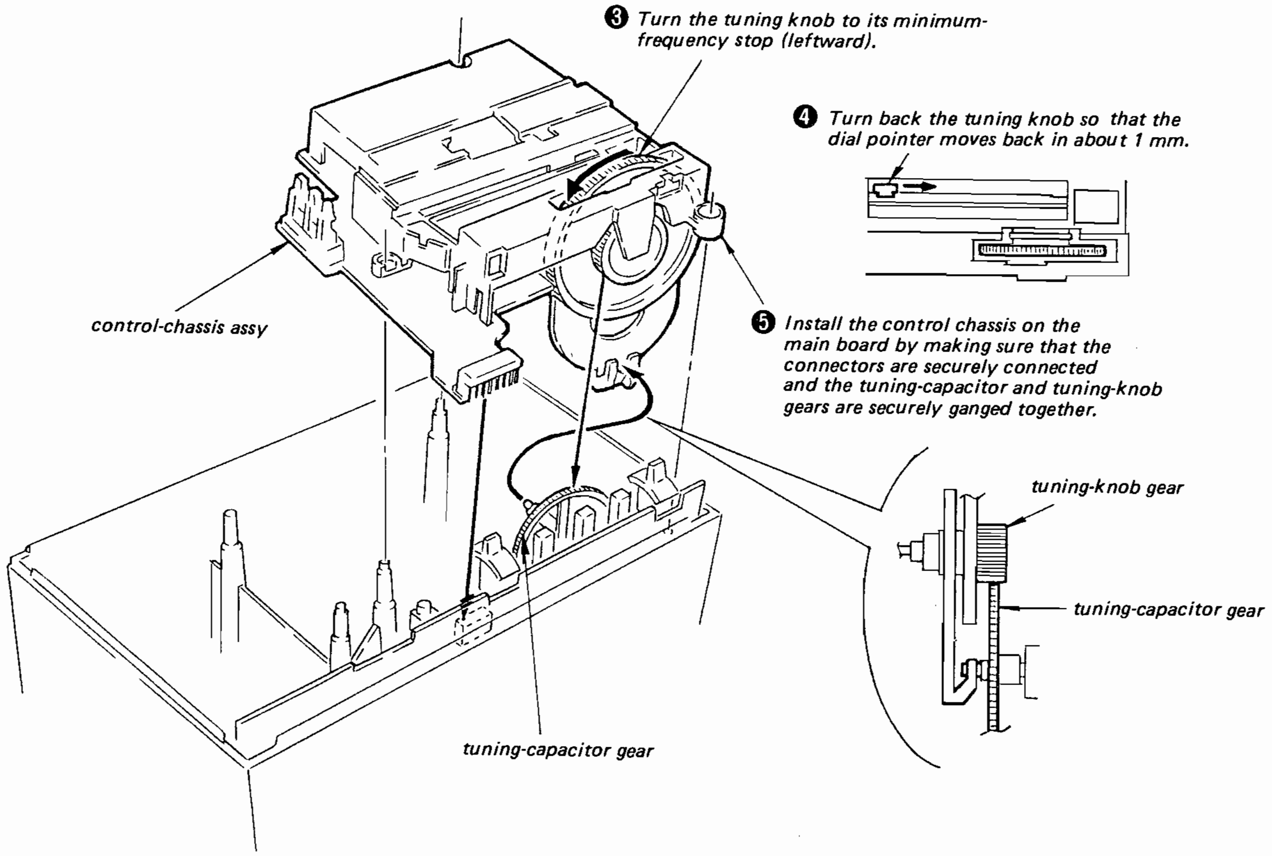
1. Mounting the Tuning-Capacitor Gear



❷ *Orient the widest spoke of the tuning-capacitor gear to the direction as shown by the arrow, and install it on the tuning-capacitor shaft.*

❶ *Turn the tuning-capacitor shaft to its full-counterclockwise stop.*

2. Installation of the Control Chassis

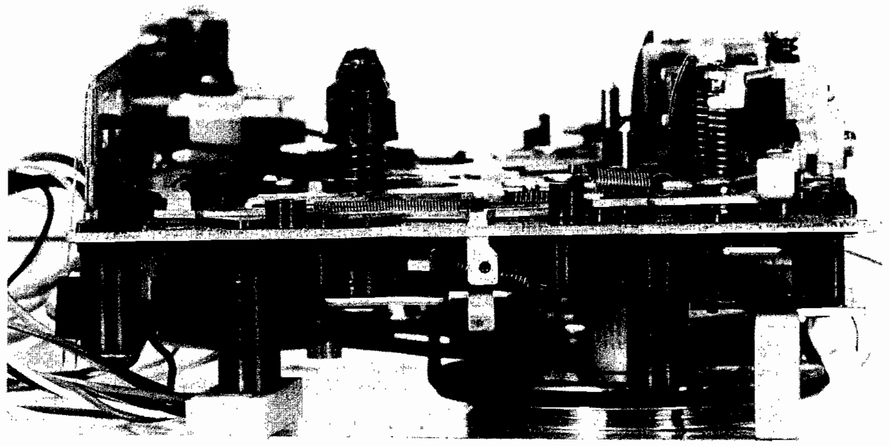

control-chassis assy
tuning-knob gear
tuning-capacitor gear
tuning-capacitor gear

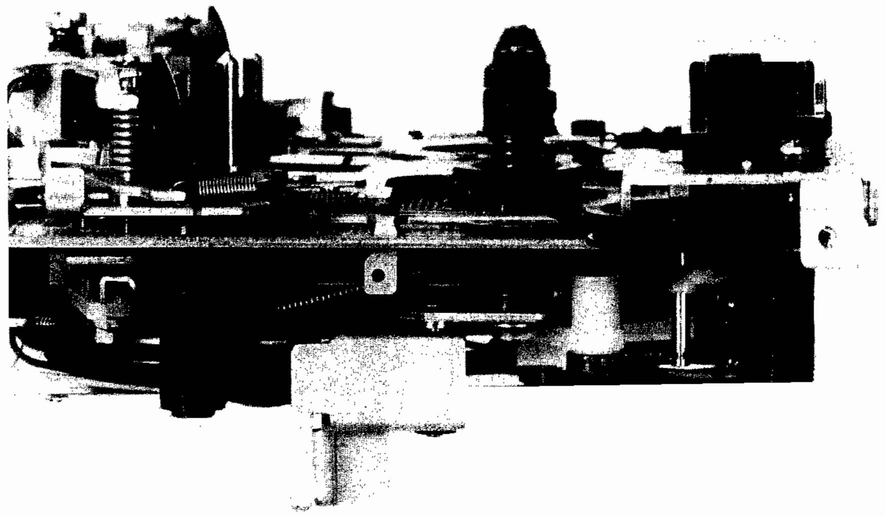
❸ *Turn the tuning knob to its minimum-frequency stop (leftward).*

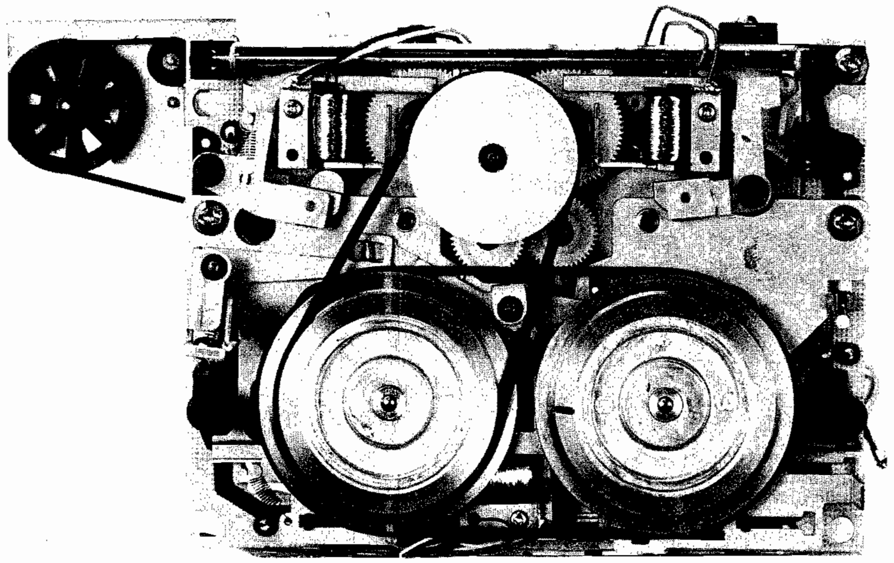
❹ *Turn back the tuning knob so that the dial pointer moves back in about 1 mm.*

❺ *Install the control chassis on the main board by making sure that the connectors are securely connected and the tuning-capacitor and tuning-knob gears are securely ganged together.*

REFERENCE PHOTOS OF THE DECK MECHANISM







Note: The larger drive belt is not in actual position.

SECTION 3
ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

Notes

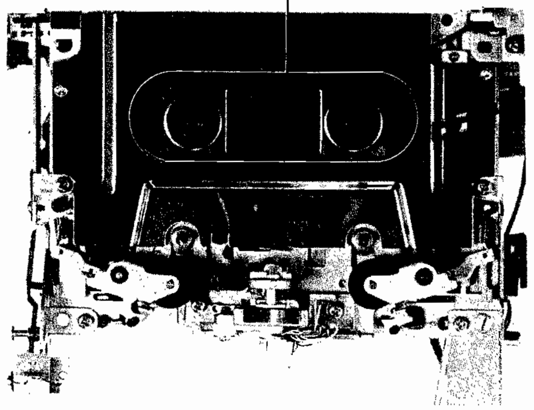
1. Before adjusting, wipe the following parts with a cloth moistened with alcohol.

Record/PB/Erase head	pinch roller
capstan	rubber belt

2. Degauss the Record/PB/Erase head with a head degausser.
3. Do not use a magnetized screwdriver for adjustments.
4. After adjusting, screw-lock the adjusted parts.
5. Unless otherwise indicated, perform adjustments at specified voltage.

Torque Measurements

Torque	Torque Meter	Measured Value
FWD torque	CQ102C	24 – 55 g·cm (0.33 – 0.76 oz·inch)
FWD back tension torque	CQ102C	2 – 5 g·cm (0.33 – 0.76 oz·inch)
REV torque	CQ102RB	24 – 55 g·cm (0.33 – 0.76 oz·inch)
REV back tension torque	CQ102RB	1.5 – 5 g·cm (0.02 – 0.07 oz·inch)
FF-REW torque	CQ201B	75 – 130 g·cm (1.04 – 1.80 oz·inch)



Note: Perform the Fast-Forward and Rewind torque measurements after operating the set in one cycle of fast-forward → stop → fast-reverse modes.

Tape Path Adjustment

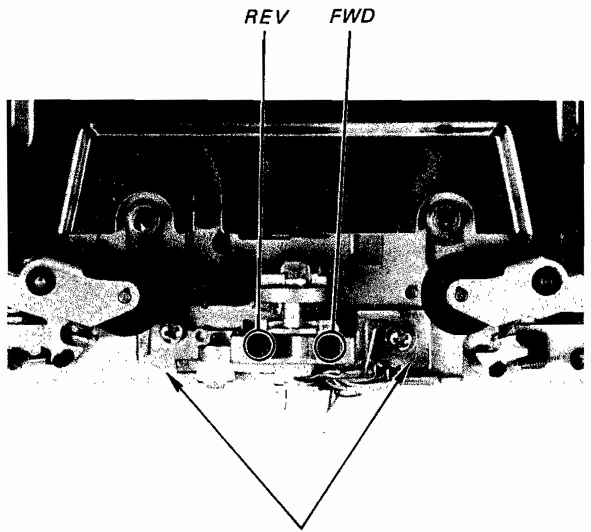
Be sure to perform this adjustment when replacing the record/playback/erase head, or head mounting table assembly.

– PB mode –

1. Use a mirror cassette and adjust for no tape curl.
2. Change the head mounting table assembly height adjustment shim so that the REC/PB head core position is correct for both FWD/REV without tape curls and twists.

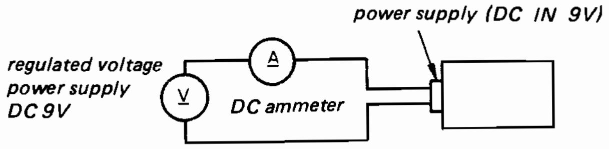
Head Mounting Table Height Adjustment Shim

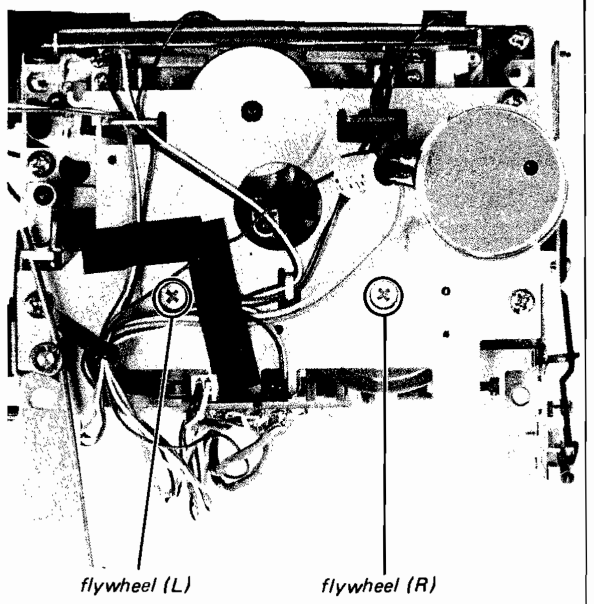
Part No.	thickness
3-313-757-01	0.1 . . . . standard
3-313-757-11	0.15
3-313-757-21	0.2



head mounting table height adj. shim

Thrust Play Adjustment

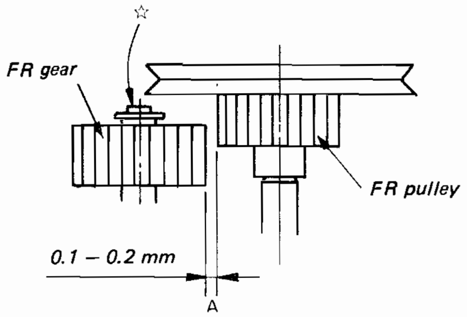




1. Loosen the adjustment screw by turning counterclockwise.
2. Put the set in FWD mode and turn the adjustment screw clockwise little by little to tighten.
3. Current will increase suddenly at a certain point. Loosen ¼ turn from this point and set.
4. After adjustment, lock the screws.
   Referecne: thrust screw pitch
   0.5mm/1 rotation
   Specification: flywheel · flywheel (R)
   within 0.15 – 0.35mm.

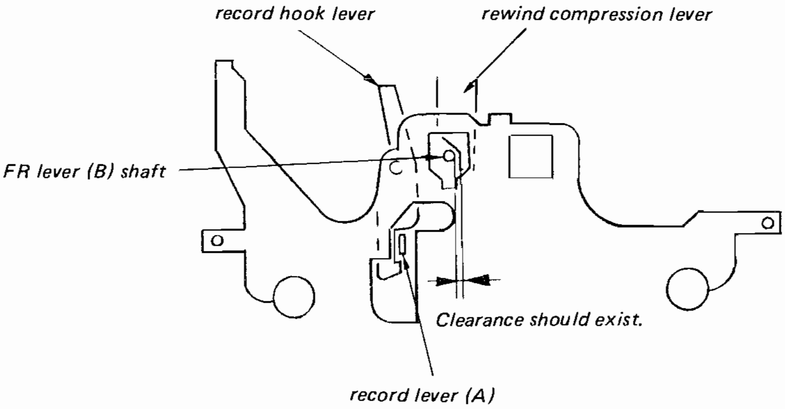
FR Gear Clearance Adjustment

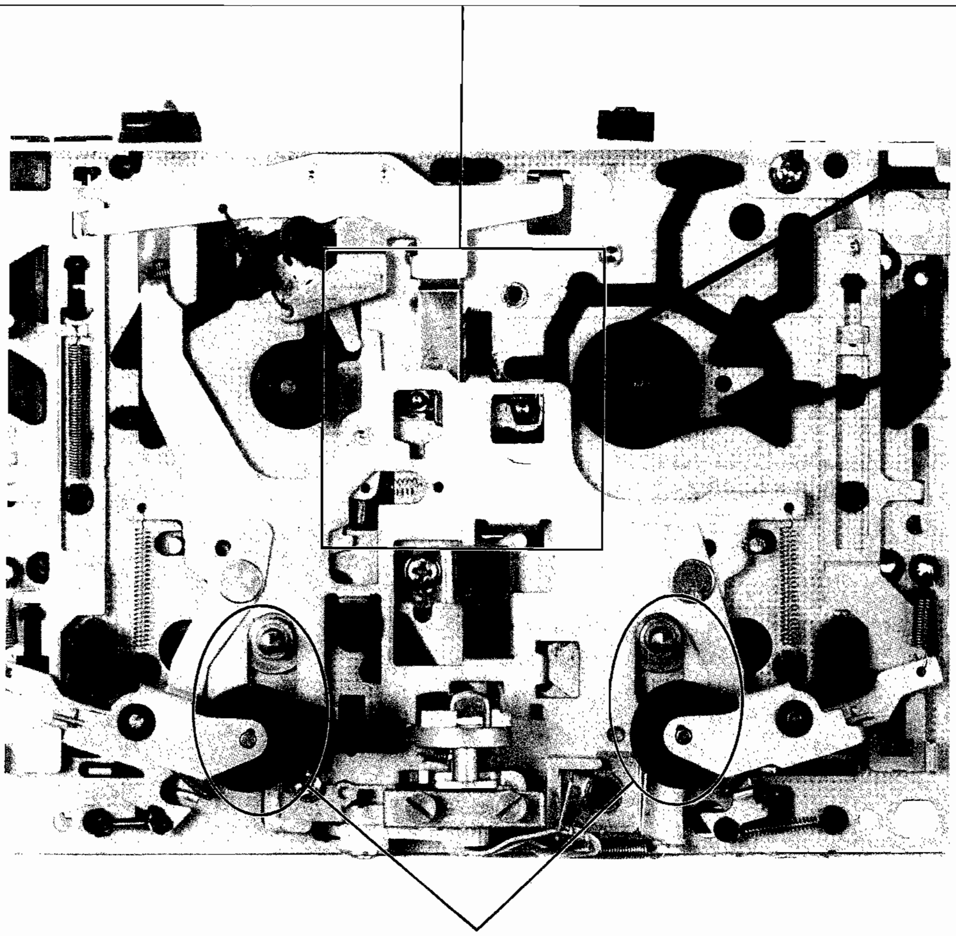
Put the set in STOP mode, and bend the part marked ☆ so that the clearance A is 0.1 – 0.2mm.



FR Lever (B) Clearance Adjustment

When the mode is changed from rewind to fast-forward, clearance shoud exist between the FR lever (B) and rewind compression lever as shown below.


record hook lever
rewind compression lever
FR lever (B) shaft
Clearance should exist.
record lever (A)



Clearance should exist between the capstans and pinch rollers in the AMS fast-forward mode both in forward and reverse conditions.

3-2. ELECTRICAL ADJUSTMENTS

TAPE-RECORDER SECTION

1. Perform adjustment in the order given. (As a general rule, perform recording system adjustment after completing playback system adjustment.)
2. Unless otherwise indicated, perform adjustment and measurement for each channel.
3. Switch, control knob positions

   FUNCTION . . . . .TAPE
   TAPE SELECT. . . . . .TYPE I (NORM)
   DOLBY NR . . . . .OFF
   ISS. 2
   VOLUME . . . . .minimum
   BASS, TREBLE . . . . .mechanical center
   BALANCE. . . . . .mechanical center
4. Specified recording position

   Adjust the VOLUME knob to obtain the following specified input/output signal levels.

   Specified input level

Input pin	MIX/MIC	LINE IN
Signal level impedance	300Ω	10kΩ
Input signal level	4.4mV (−45dB)	0.3V (−8.2dB)

   Specified output level

Output pin	SP OUT	LINE OUT
Load impedance	6Ω	47kΩ
Output signal level	0.775V (0dB)	0.3V (−8.2dB)

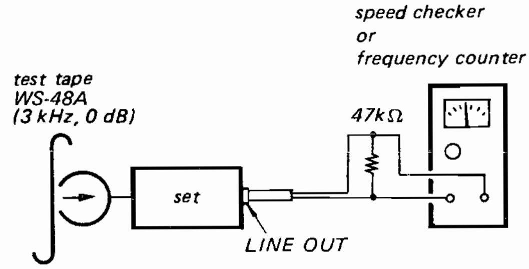
0dB = 0.775V

5. Reinstall the control and button boards and deck mechanism in the connectors on the main board.

Tape Speed Adjustment

Procedure:

– FWD PB mode –

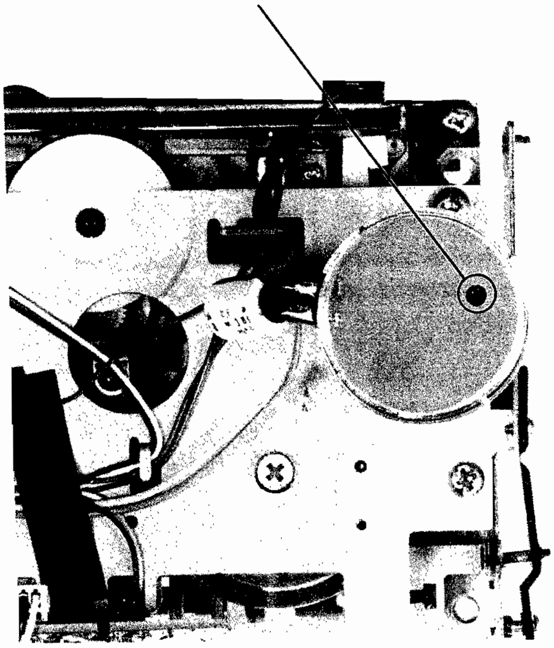


Specification:

3,000 Hz, +75 Hz, −60 Hz

Adjust so that frequency difference of beginning and end of winding is 1% (30Hz).

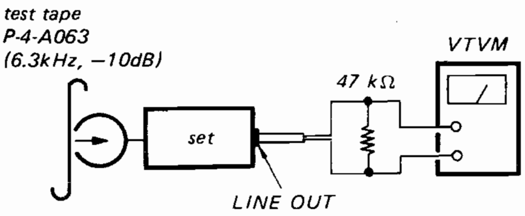
Adjustment Location: Adjust variable resistor inside motor.
(Insert screwdriver to adjust. Speed increases when turned clockwise.)



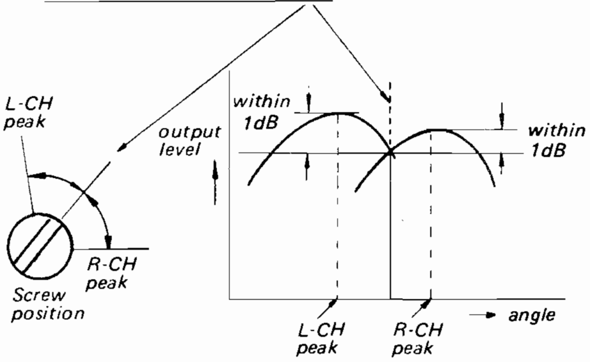
Record/playback Head Azimuth Adjustment

Procedure:

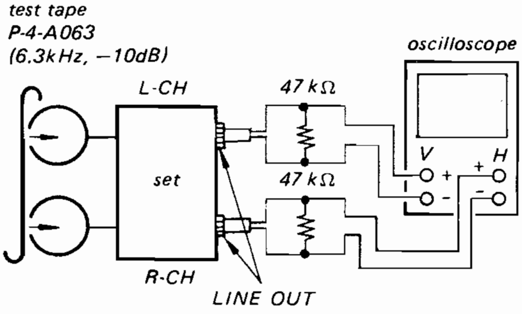
1. Mode: playback

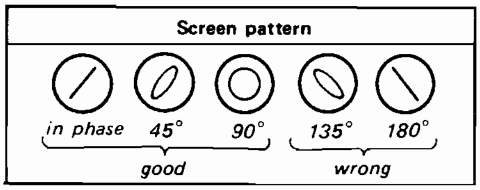

test tape
P-4-A063
(6.3kHz, −10dB)
VTVM
47 kΩ
set
LINE OUT

2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1dB.

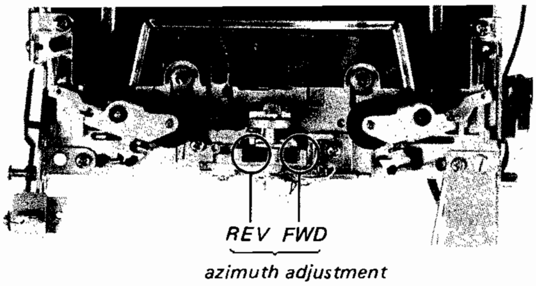

L-CH
peak
output
level
within
1dB
within
1dB
R-CH
peak
Screw
position
L-CH
peak
R-CH
peak
angle

3. Phase Check
   Mode: playback


test tape
P-4-A063
(6.3kHz, −10dB)
oscilloscope
L-CH
47 kΩ
set
47 kΩ
V
H
R-CH
LINE OUT


Screen pattern
in phase
45°
90°
135°
180°
good
wrong

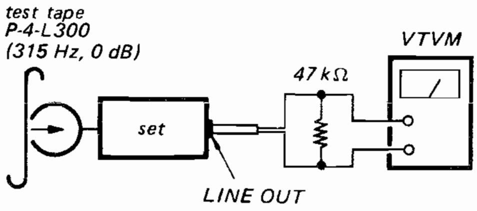
Adjustment Location:


REV
FWD
azimuth adjustment

Playback Level Adjustment

Procedure:

– Playback mode –


test tape
P-4-L300
(315 Hz, 0 dB)
VTVM
47 kΩ
set
LINE OUT

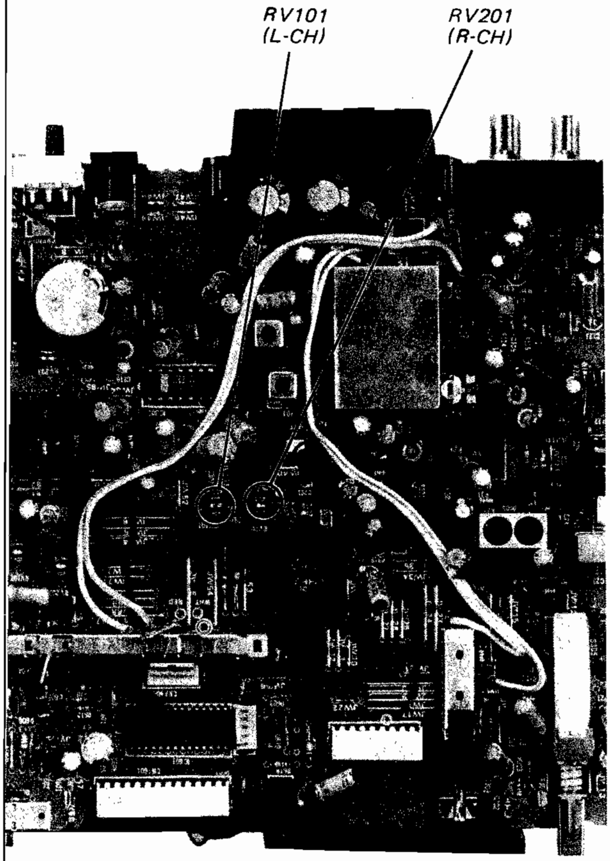
Specification:

LINE OUT level: 0.3 V ± 0.02 V
(−8.2 dB ± 0.5 dB)

Level difference between channels:
within 0.3 dB

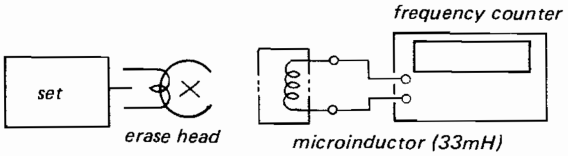
Confirm that LINE OUT level does not change when playback, STOP are repeated.

Adjustment Location: Main board


RV101
(L-CH)
RV201
(R-CH)

REC Bias Oscillation Frequency Adjustment

Procedure:

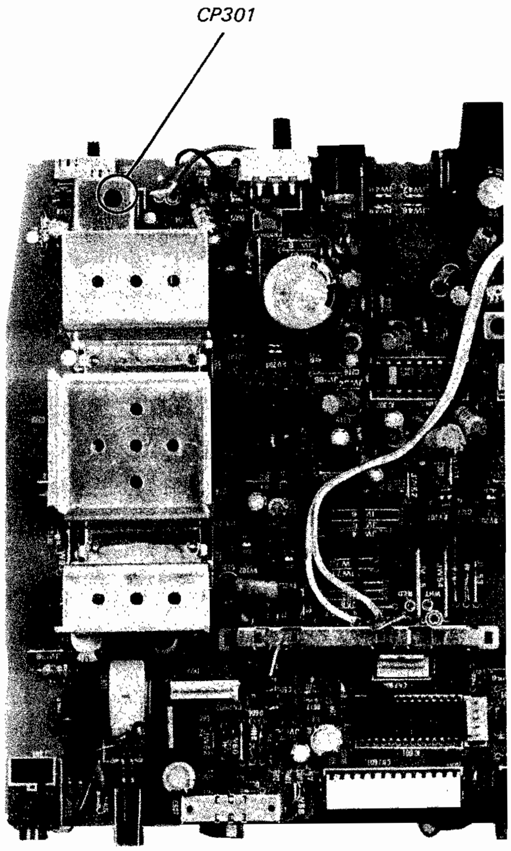

frequency counter
set
erase head
microinductor (33mH)

1. Set for no signal recording state.
2. Bring the microinductor connected to the frequency counter close to the erase head core.
3. Adjust CP301 with the ISS switch set to 2.
4. Change the ISS switch to 1 and 2 and check for the frequencies respectively.

Adjustment Values:

ISS switch 1:	88.0kHz ± 2.0kHz
ISS switch 2: (normal position)	85.0kHz ± 2.0kHz
ISS switch 3:	81.5kHz ± 2.0kHz

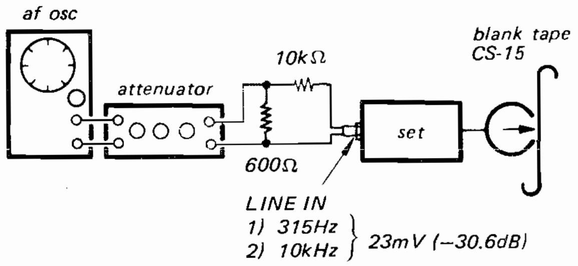
Adjustment Location: Main board



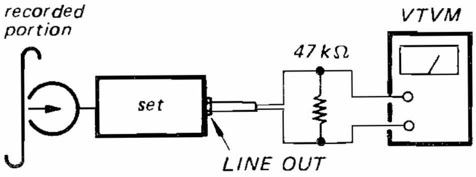
Record Bias Adjustment

Procedure:

1. Mode: record

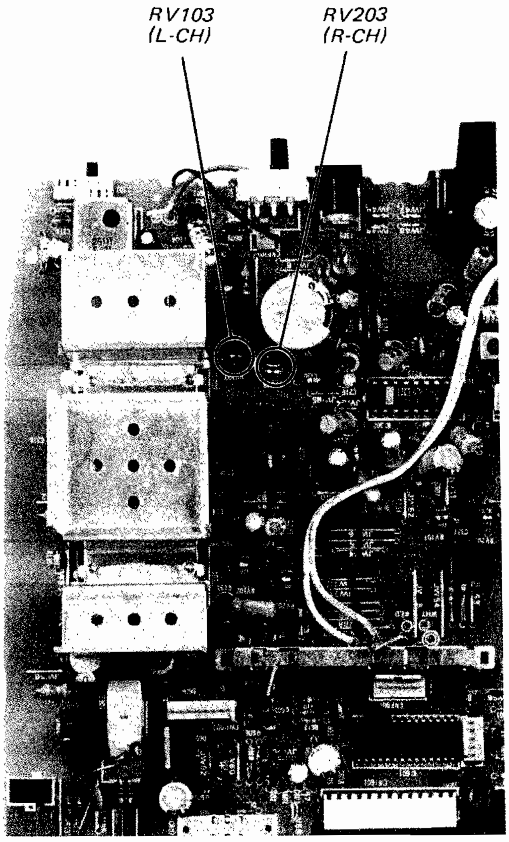

af osc
attenuator
10kΩ
600Ω
blank tape CS-15
set
LINE IN
1) 315Hz
2) 10kHz
23mV (−30.6dB)

2. Mode: playback


recorded portion
VTVM
47kΩ
set
LINE OUT

Adjust RV 103 (L-CH) and RV 203 (R-CH) so that the 10kHz playback output difference is −1.5dB ± 0.5dB relative to 315Hz playback output.

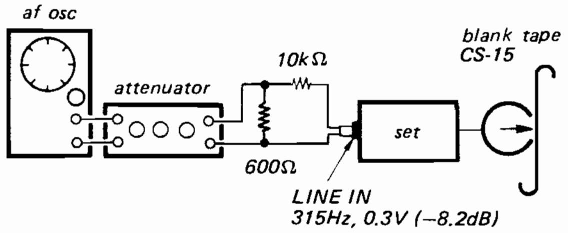
Adjustment Location: Main board


RV103 (L-CH)
RV203 (R-CH)

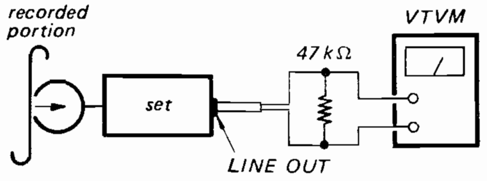
Record Level Adjustment

Procedure:

1. Mode: record


af osc
attenuator
10kΩ
600Ω
set
blank tape
CS-15
LINE IN
315Hz, 0.3V (–8.2dB)

2. Mode: playback


recorded
portion
set
47kΩ
VTVM
LINE OUT

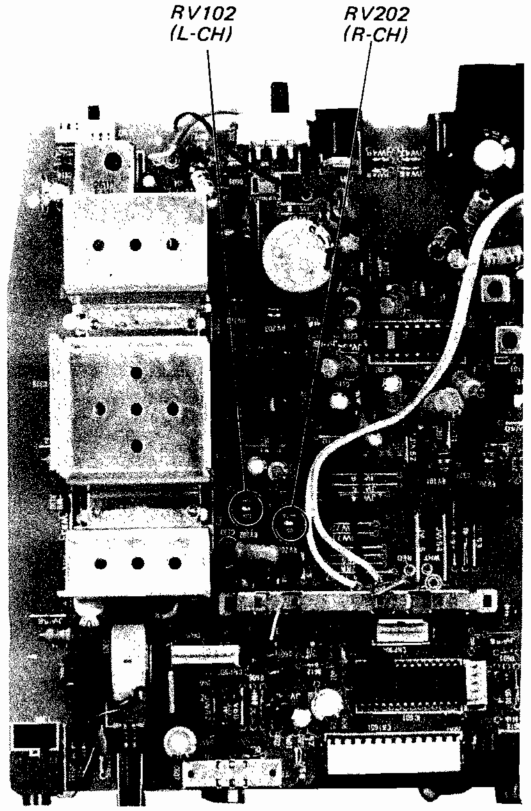
Adjust RV102 (L-CH) and RV202 (R-CH).

3. Repeat steps 1 and 2 several times until no improvement is obtained.

Specification:

LINE OUT level: 0.3 V ± 0.2 V
(–8.2 dB ± 0.5 dB)

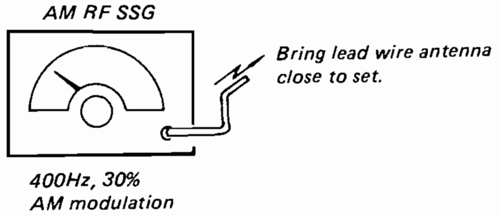
Adjustment Location: Main board

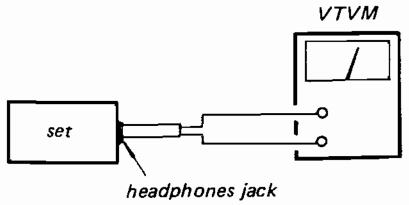

RV102
(L-CH)
RV202
(R-CH)

RADIO SECTION

AM SECTION

FUNCTION switch: RADIO
BAND switch: AM


AM RF SSG
Bring lead wire antenna
close to set.
400Hz, 30%
AM modulation


VTVM
set
headphones jack

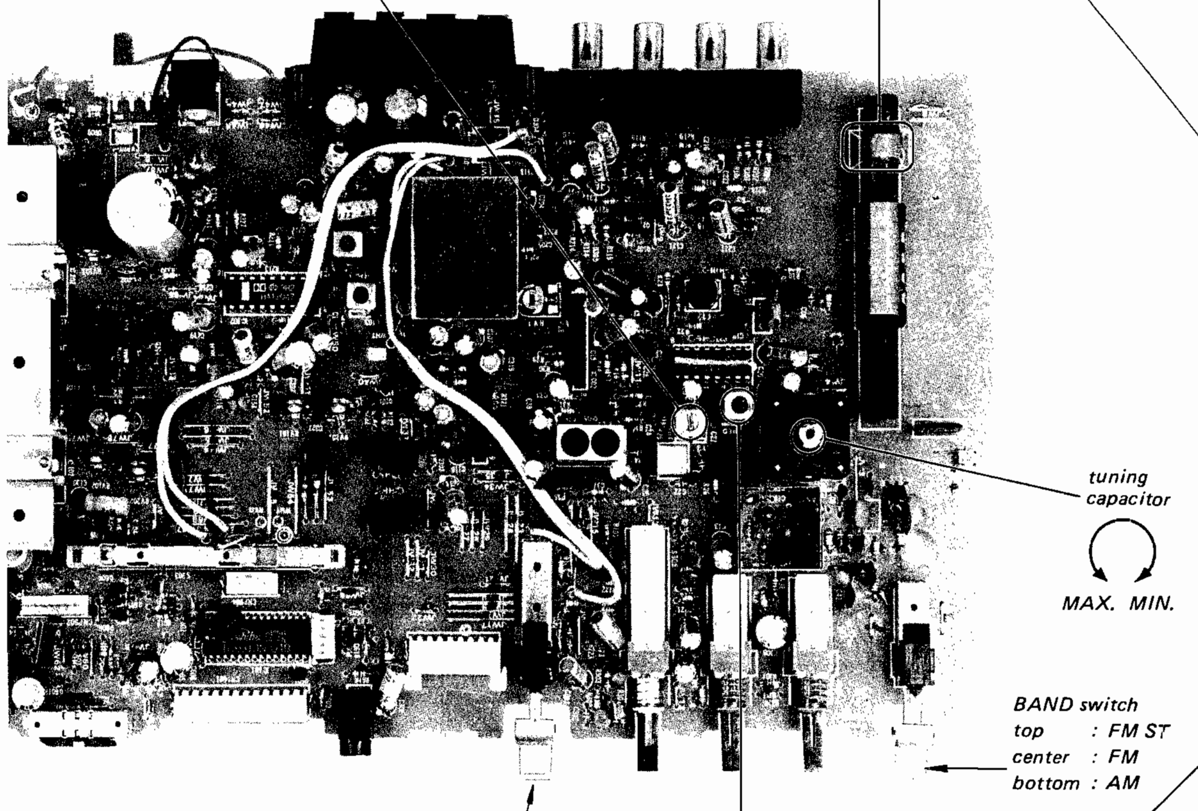
- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

AM IF ALIGNMENT

Adjust for maximum reading on VTVM.	
455kHz	T3

AM TRACKING ADJUSTMENT

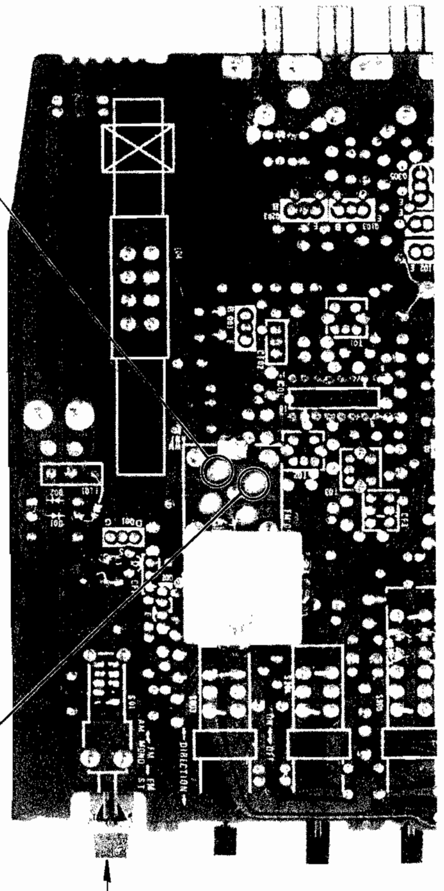
Adjust for maximum reading on VTVM.	
620kHz	1,400kHz
L4	CT2


tuning
capacitor
MAX. MIN.
BAND switch
top : FM ST
center : FM
bottom : AM

FUNTION switch
top : LINE IN
center : RADIO
bottom : TAPE

T2	CT4
520kHz	1,680kHz
tuning capacitor MAX. (f min)	tuning capacitor MIN. (f max)
Adjust for maximum reading on VTVM.	

AM FREQUENCY COVERAGE ADJUSTMENT



BAND switch
top : AM
center : FM
bottom : FM ST

FM S

FM

400Hz, 3
Frequenc

- Rep
seve
trac
the

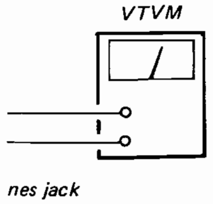
FM

Pro

Ca
Mo
Ou
Mo

1.

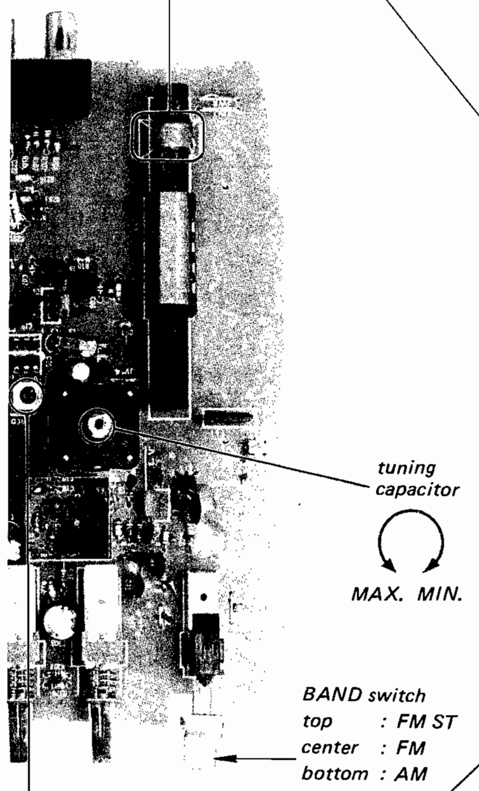
2.

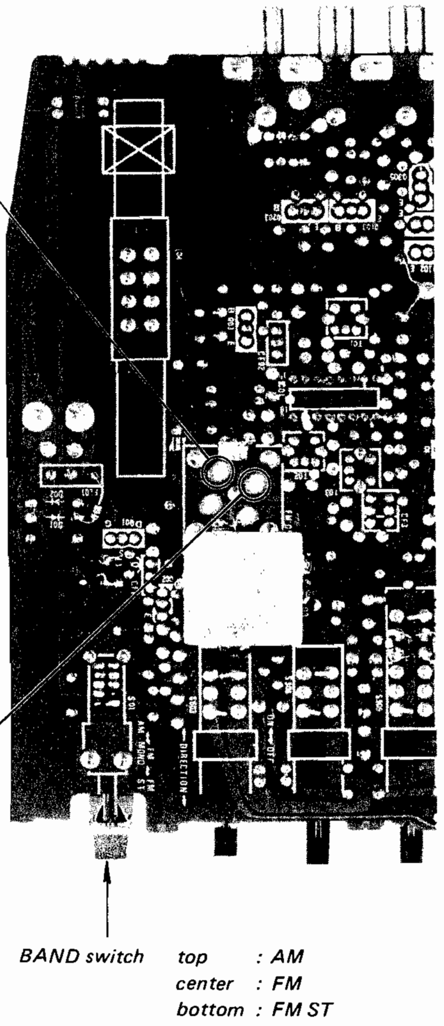

VTVM
nes jack

AM TRACKING ADJUSTMENT

Adjust for maximum reading on VTVM.

620kHz	1,400kHz
L4	CT2


tuning capacitor
MAX. MIN.
BAND switch
top : FM ST
center : FM
bottom : AM


BAND switch
top : AM
center : FM
bottom : FM ST

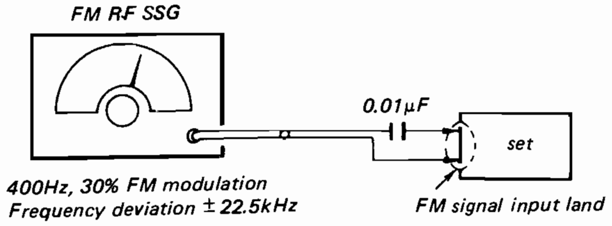
T2	CT4
520kHz	1,680kHz
tuning capacitor MAX. (f min)	tuning capacitor MIN. (f max)

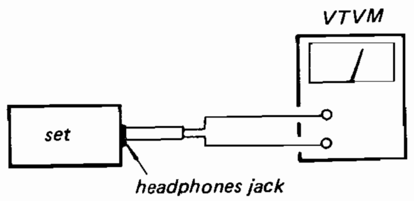
Adjust for maximum reading on VTVM.

AM FREQUENCY COVERAGE ADJUSTMENT

FM SECTION

FUNCTION switch: RADIO
BAND switch: FM or FM ST

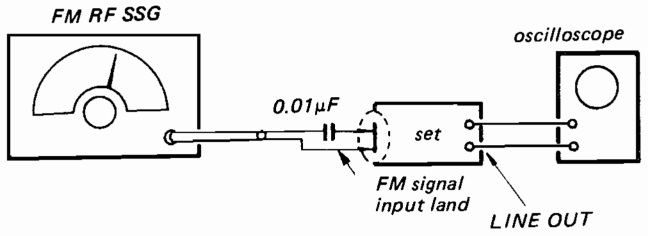

FM RF SSG
0.01µF
set
400Hz, 30% FM modulation
Frequency deviation ±22.5kHz
FM signal input land


VTVM
set
headphones jack

- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

FM Discriminator Adjustment

Procedure:


FM RF SSG
oscilloscope
0.01µF
set
FM signal input land
LINE OUT

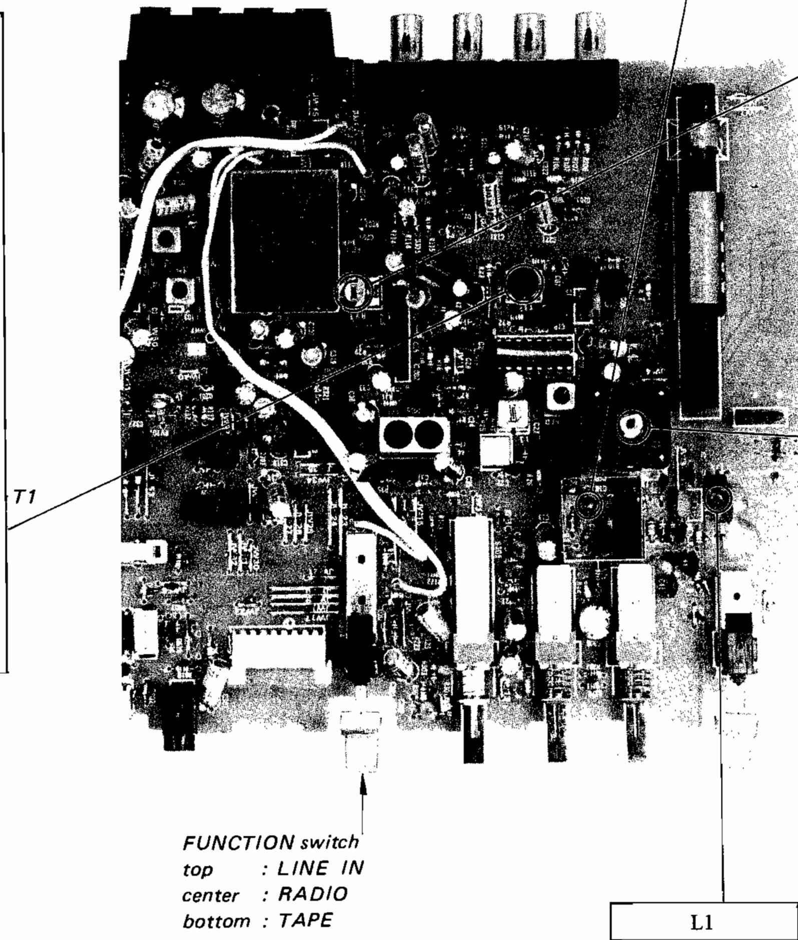
Carrier frequency:	98MHz
Modulation:	1kHz, 25kHz deviation (100%)
Output Level:	1mV (60dB)
Mode:	monaural

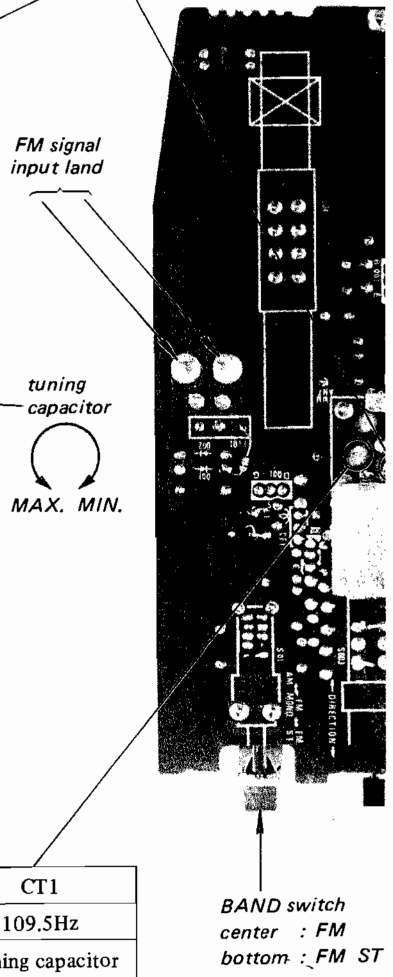
1. Tune to 98MHz.
2. Adjust T1 so that the top and bottom of the waveform are symmetrical.

FM FREQUENCY COVERAGE ADJUSTMENT

Adjust for maximum reading on VTVM.

tuning capacitor MAX. (f min)	tuning capacitor MIN. (f max)
86.5MHz	109.5MHz
L3	CT3


T1
FUNCTION switch
top : LINE IN
center : RADIO
bottom : TAPE


FM signal input land
tuning capacitor
MAX. MIN.
BAND switch
center : FM
bottom : FM ST

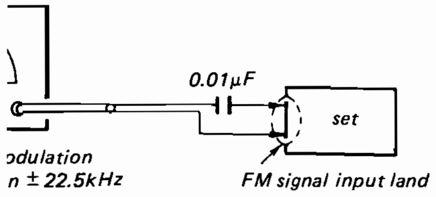
L1	CT1
86.5MHz	109.5Hz
tuning capacitor MAX. (f min)	tuning capacitor MIN.(f max.)

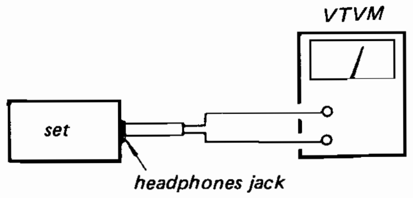
Adjust for maximum reading on VTVM.

FM TRACKING ADJUSTMENT

N

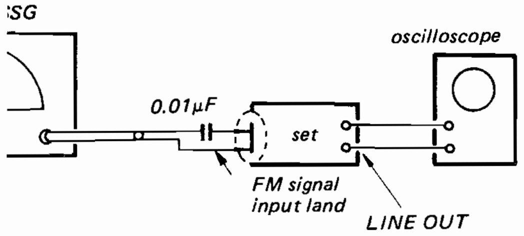
FUNCTION switch: RADIO
BAND switch: FM or FM ST


0.01μF
set
odulation
n ± 22.5kHz
FM signal input land


VTVM
set
headphones jack

procedures in each adjustment , and the frequency coverage and stments should be finally done by apacitors.

inator Adjustment


SG
oscilloscope
0.01μF
set
FM signal
input land
LINE OUT

ency: 98MHz
1kHz, 25kHz deviation (100%)
l: 1mV (60dB)
monaural

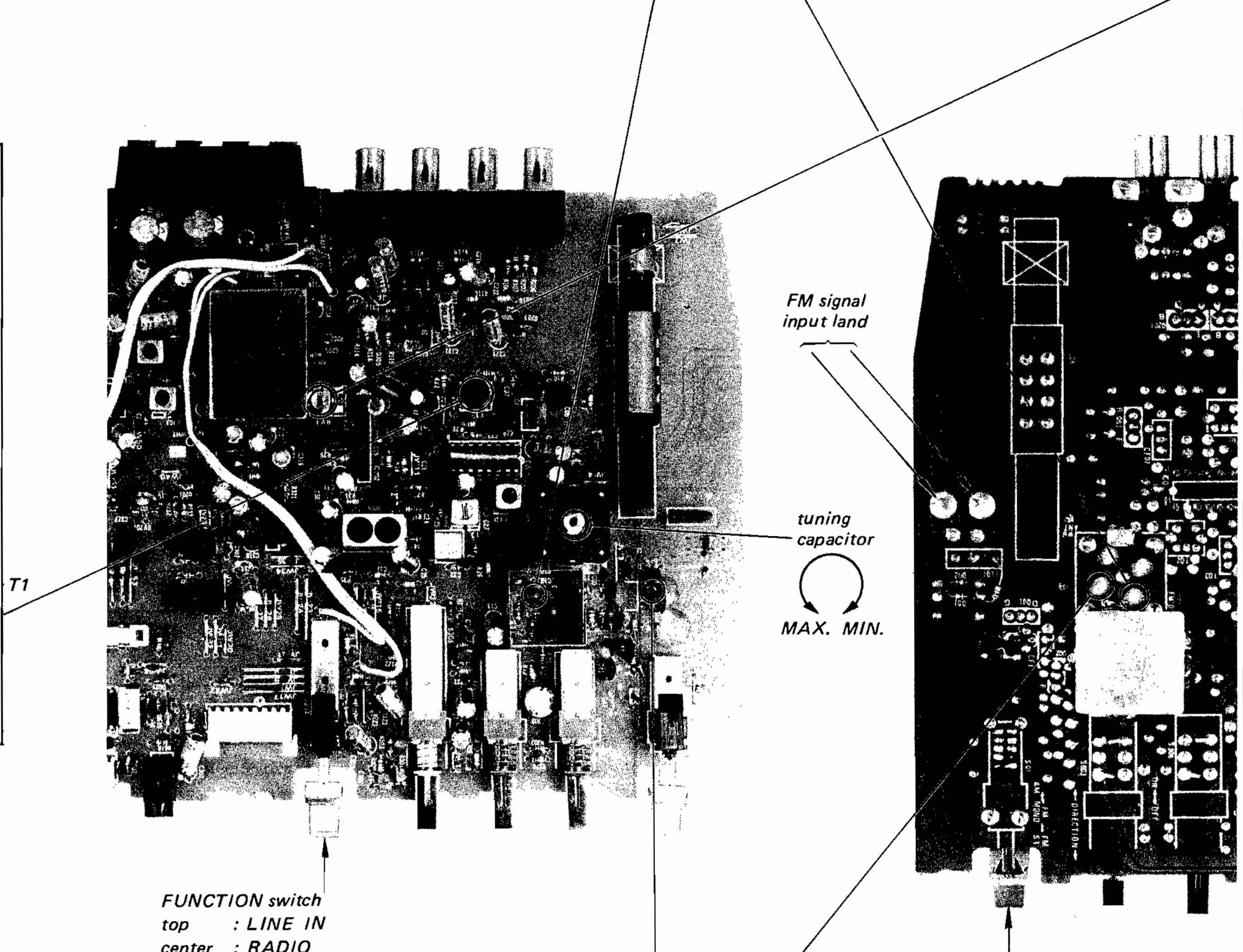
98MHz.

T1 so that the top and bottom of the m are symmetrical.

FM FREQUENCY COVERAGE ADJUSTMENT

Adjust for maximum reading on VTVM.

tuning capacitor MAX. (f min)	tuning capacitor MIN. (f max)
86.5MHz	109.5MHz
L3	CT3


T1
RV1
FM signal
input land
tuning
capacitor
MAX. MIN.

FUNCTION switch
top : LINE IN
center : RADIO
bottom : TAPE

BAND switch
center : FM
bottom : FM ST

L1	CT1
86.5MHz	109.5Hz
tuning capacitor MAX. (f min)	tuning capacitor MIN.(f max.)

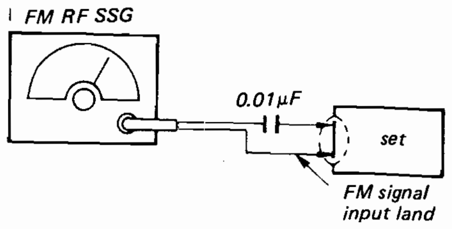
Adjust for maximum reading on VTVM.

FM TRACKING ADJUSTMENT

VCO Adjustment

A) Regular Method

Procedure:


FM RF SSG
0.01μF
set
FM signal
input land

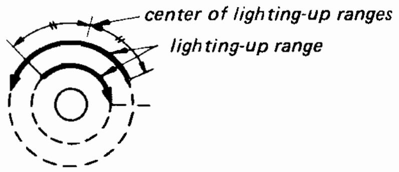
Carrie frequency: 98MHz
Modulation: demodulated
Output level: 1mV (60dB)

1. Tune to 98MHz.
2. Adjust RV1 so that the frequency counter reading is 38kHz ±0.1kHz

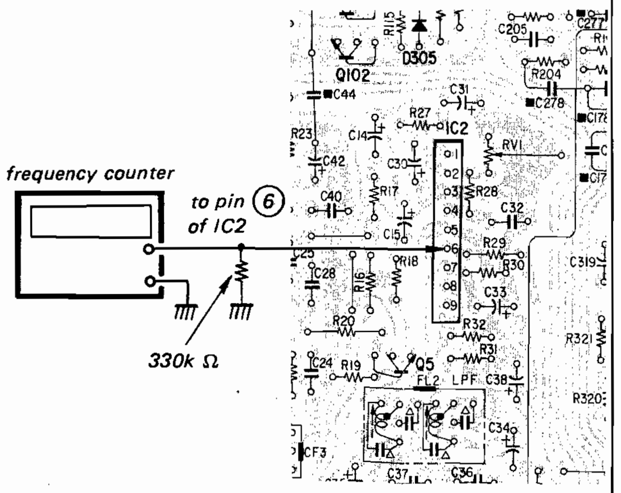
B) Simple Method

Procedure:

1. Receive an FM stereo broadcast.
2. Turn RV1 left and right, and set at the midpoint of where the stereo lamp lit intervals overlap.


center of lighting-up ranges
lighting-up range

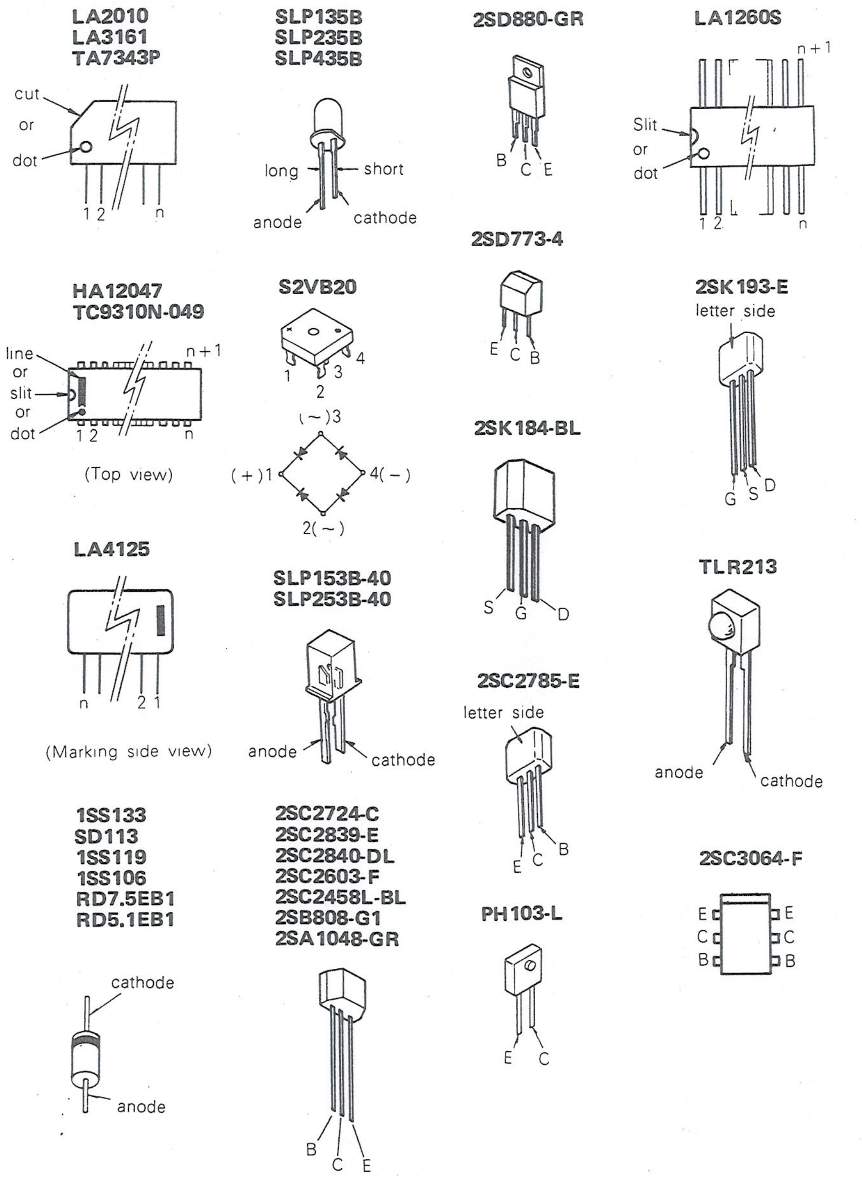
Adjustment Location: Main board


frequency counter
to pin ⑥
of IC2
330k Ω
Q102
D305
R115
C205
R204
C277
C278
C44
C31
R27
IC2
R23
C14
C42
C30
RV1
C40
R17
R28
C32
C15
C25
R29
R30
C28
R16
R18
C33
C319
R20
R32
R31
R321
C24
R19
Q5
FL2
LPF
C38
R320
C34
CF3
C37
C36

SECTION 4
DIAGRAMS

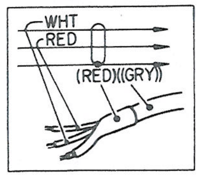
4-1. MOUNTING DIAGRAM
— Conductor Side —

- **Semiconductor Lead Layouts.**

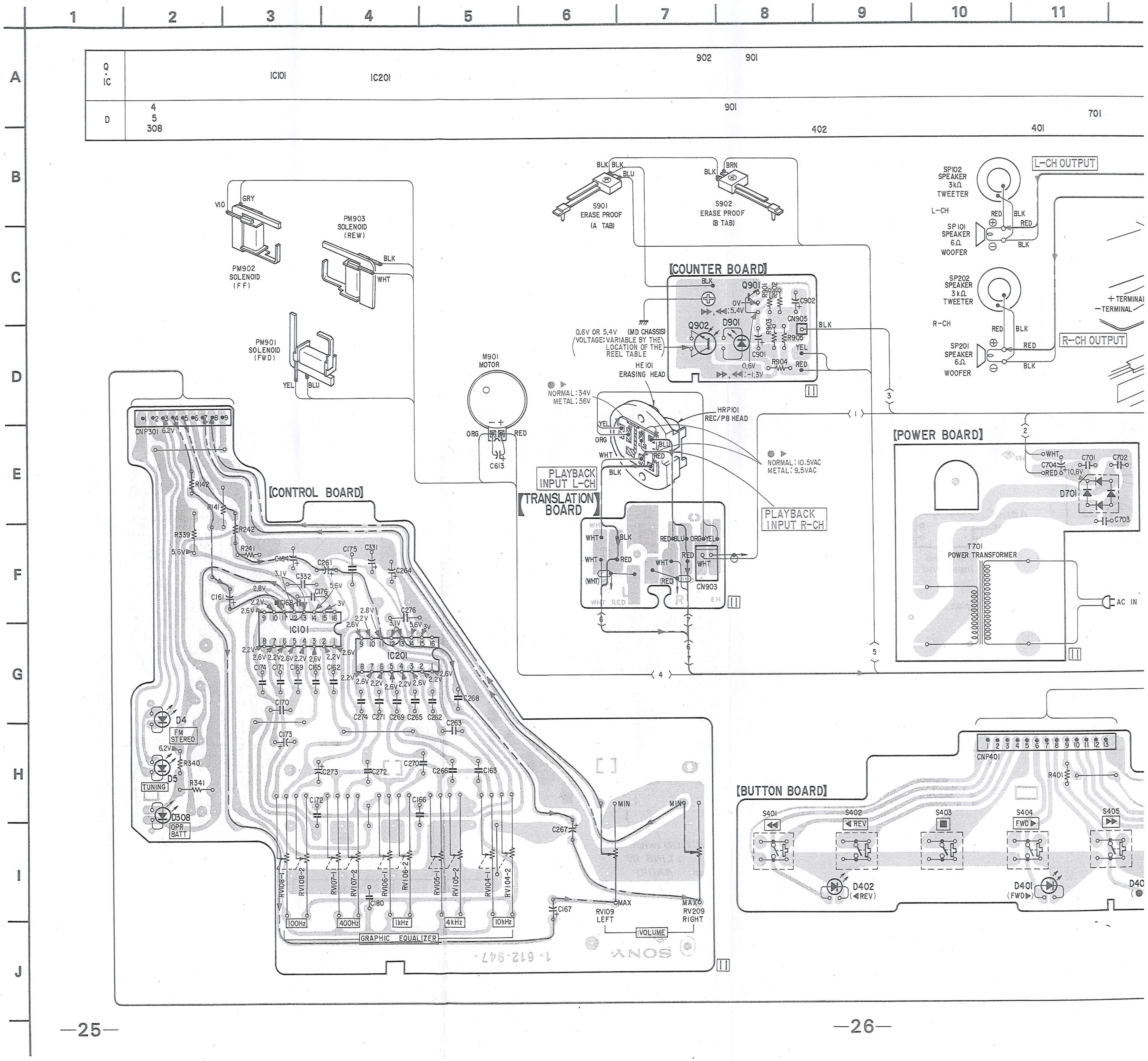

LA2010
LA3161
TA7343P
cut
or
dot
1 2
n
SLP135B
SLP235B
SLP435B
long
short
anode
cathode
2SD880-GR
B C E
LA1260S
n+1
Slit
or
dot
1 2
n
2SD773-4
E C B
HA12047
TC9310N-049
line
or
slit
or
dot
n+1
1 2
n
(Top view)
S2VB20
1 3 4
2
(~)3
(+)1
4(−)
2(~)
2SK193-E
letter side
G S D
2SK184-BL
S G D
LA4125
n
2 1
(Marking side view)
SLP153B-40
SLP253B-40
anode
cathode
TLR213
anode
cathode
2SC2785-E
letter side
E C B
1SS133
SD113
1SS119
1SS106
RD7.5EB1
RD5.1EB1
cathode
anode
2SC2724-C
2SC2839-E
2SC2840-DL
2SC2603-F
2SC2458L-BL
2SB808-G1
2SA1048-GR
B C E
PH103-L
E C
2SC3064-F
E C B
E C B

Note:

- Color code of sleeving over the end of the jacket.


WHT
RED
(RED)((GRY))

- ○—— : parts extracted from the component side.
- ●—— : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- [ ]← : indicates side identified with part number.
- ━━▶━━ : signal path
- ━━━▶ : L-CH signal path
- ━━━▶ : R-CH signal path
- ▨ : B + pattern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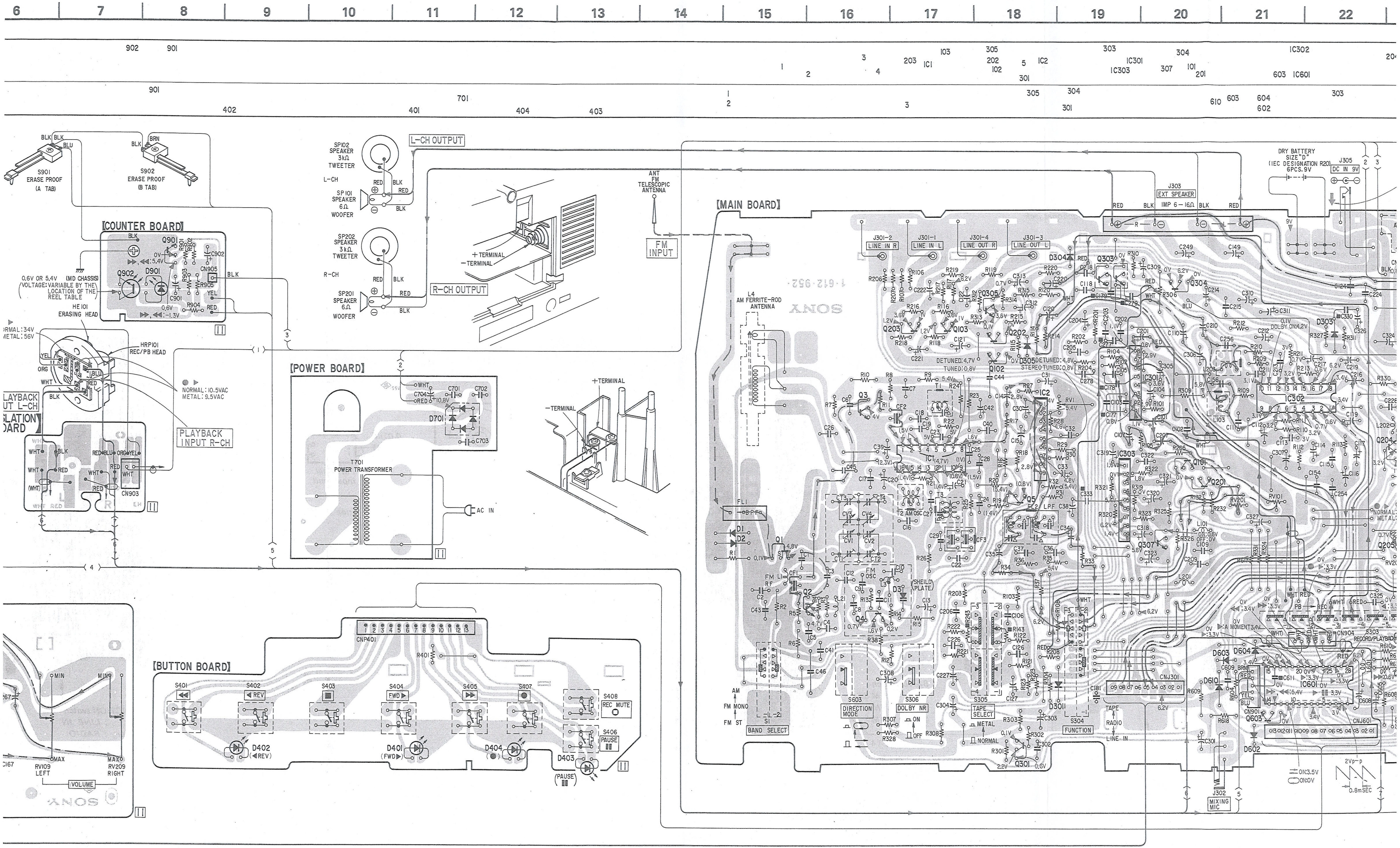
11
A
B
C
D
E
F
G
H
I
J
Q
IC
D
IC101
IC201
902
901
4
5
308
901
402
701
401
V10
GRY
PM902
SOLENOID
(FF)
PM903
SOLENOID
(REW)
BLK
WHT
PM901
SOLENOID
(FWD)
YEL
BLU
S901
ERASE PROOF
(A TAB)
S902
ERASE PROOF
(B TAB)
BLK
BRN
M901
MOTOR
ORG
RED
C613
[COUNTER BOARD]
Q901
Q902
D901
C901
C902
CN905
R903
R904
R905
0V
5.4V
0.6V
-1.3V
0.6V OR 5.4V (MD CHASSIS)
VOLTAGE: VARIABLE BY THE LOCATION OF THE REEL TABLE
HE101
ERASING HEAD
NORMAL: 34V
METAL: 56V
HRP101
REC/PB HEAD
NORMAL: 10.5VAC
METAL: 9.5VAC
PLAYBACK
INPUT L-CH
PLAYBACK
INPUT R-CH
[TRANSLATION BOARD]
CN903
SP102
SPEAKER
3kΩ
TWEETER
L-CH
SP101
SPEAKER
6Ω
WOOFER
SP202
SPEAKER
3kΩ
TWEETER
R-CH
SP201
SPEAKER
6Ω
WOOFER
L-CH OUTPUT
R-CH OUTPUT
+TERMINAL
−TERMINAL
[POWER BOARD]
C701
C702
C703
C704
D701
10.6V
T701
POWER TRANSFORMER
AC IN
CNP301
6.2V
R142
R141
R242
R339
R241
5.6V
[CONTROL BOARD]
C175
C331
C264
C164
C261
C332
C176
C161
C168
C276
IC101
IC201
C174
C171
C169
C165
C162
C274
C271
C269
C265
C262
C268
C263
C170
C173
C273
C272
C270
C266
C163
C172
C166
C180
C267
C167
D4
FM STEREO
D5
TUNING
R340
R341
D308
OPR BATT
RV108-1
RV108-2
RV107-1
RV107-2
RV106-1
RV106-2
RV105-1
RV105-2
RV104-1
RV104-2
100Hz
400Hz
1kHz
4kHz
10kHz
GRAPHIC EQUALIZER
MIN
MAX
RV109
LEFT
RV209
RIGHT
VOLUME
1-612-947-
SONY
[BUTTON BOARD]
CNP401
R401
S401
S402
◀REV
S403
S404
FWD▶
S405
D402
(◀REV)
D401
(FWD▶)


6
7
8
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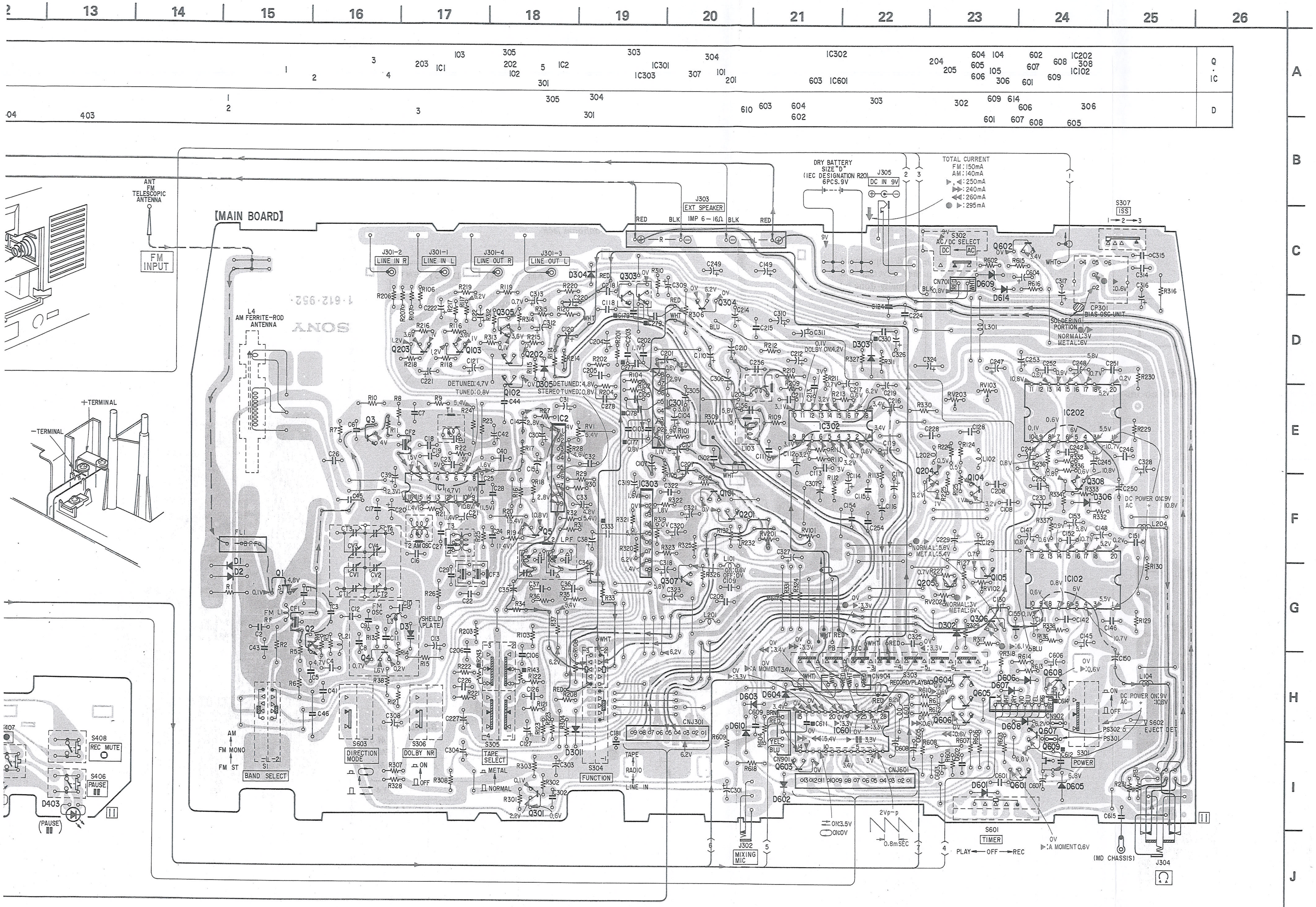
10
11
12
13
14
15
16
17
18
19
20
21
22
S901
ERASE PROOF
(A TAB)
S902
ERASE PROOF
(B TAB)
[COUNTER BOARD]
Q901
Q902
D901
CN905
0.6V OR 5.4V (MD CHASSIS)
VOLTAGE: VARIABLE BY THE LOCATION OF THE REEL TABLE
HE101
ERASING HEAD
HRP101
REC/PB HEAD
NORMAL: 10.5VAC
METAL: 9.5VAC
PLAYBACK INPUT R-CH
PLAYBACK OUT L-CH
CN903
SP102
SPEAKER
3kΩ
TWEETER
L-CH
SP101
SPEAKER
6Ω
WOOFER
SP202
SPEAKER
3kΩ
TWEETER
R-CH
SP201
SPEAKER
6Ω
WOOFER
L-CH OUTPUT
R-CH OUTPUT
+TERMINAL
−TERMINAL
ANT
FM
TELESCOPIC
ANTENNA
FM INPUT
[POWER BOARD]
D701
C701
C702
C703
C704
T701
POWER TRANSFORMER
AC IN
[BUTTON BOARD]
CNP401
R401
S401
S402 REV
S403
S404 FWD
S405
S407
S408 REC MUTE
S406 PAUSE
D402 (REV)
D401 (FWD)
D404
D403 (PAUSE)
RV109
LEFT
RV209
RIGHT
VOLUME
MIN
MAX
[MAIN BOARD]
L4
AM FERRITE-ROD ANTENNA
1-612-952-
SONY
J301-2 LINE IN R
J301-1 LINE IN L
J301-4 LINE OUT R
J301-3 LINE OUT L
J303
EXT SPEAKER
IMP 6−16Ω
DRY BATTERY
SIZE "D"
(IEC DESIGNATION R20)
6PCS. 9V
J305
DC IN 9V
IC1
IC2
IC301
IC302
IC303
IC601
Q1
Q2
Q3
Q4
Q5
Q101
Q102
Q103
Q201
Q202
Q203
Q204
Q205
Q301
Q303
Q304
Q305
Q307
Q603
D1
D2
D3
D303
D304
D305
D3011
D602
D603
D604
D610
DETUNED: 4.7V
TUNED: 0.8V
DETUNED: 4.8V
STEREO TUNED: 0.8V
DOLBY ON: 4.2V
FL1
FM L1
RF
CF1
CF2
CF3
FM OSC
AM OSC
SHEILD PLATE
LPF
CT1
CT2
CT3
CT4
CV1
CV2
CV3
CV4
S1
BAND SELECT
AM
FM MONO
FM ST
S603
DIRECTION MODE
S506
DOLBY NR
S305
TAPE SELECT
METAL
NORMAL
S304
FUNCTION
TAPE
RADIO
LINE IN
CNJ301
CN901
CN904
CNJ601
S303
RECORD/PLAYBACK
J302
MIXING MIC
A MOMENT 3.4V
ON 3.5V
ON 0V
2Vp-p
0.8mSEC
NORMAL
METAL


13
14
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19
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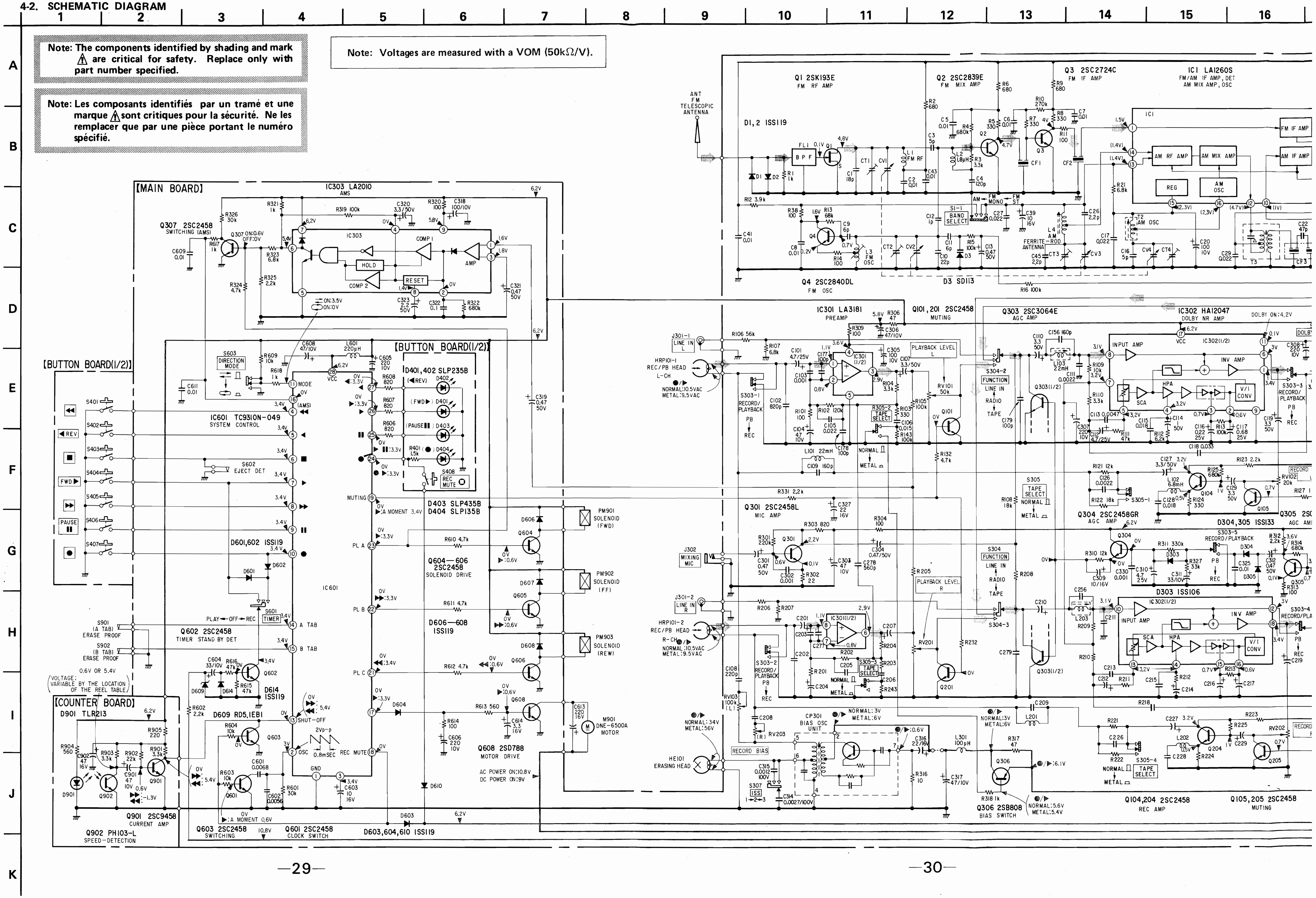
21
22
23
24
25
26
A
B
C
D
E
F
G
H
I
J
Q · IC
D
ANT FM TELESCOPIC ANTENNA
FM INPUT
[MAIN BOARD]
L4 AM FERRITE-ROD ANTENNA
+TERMINAL
−TERMINAL
J301-2 LINE IN R
J301-1 LINE IN L
J301-4 LINE OUT R
J301-3 LINE OUT L
J303 EXT SPEAKER IMP 6−16Ω
RED
BLK
DRY BATTERY SIZE "D" (IEC DESIGNATION R20) 6PCS.9V
J305 DC IN 9V
TOTAL CURRENT
FM: 150mA
AM: 140mA
250mA
240mA
260mA
295mA
S302 AC/DC SELECT
DC
AC
S307 ISS
CP301 BIAS OSC UNIT
SOLDERING PORTION
NORMAL: 3V
METAL: 6V
DETUNED: 4.7V
TUNED: 0.8V
DETUNED: 4.8V
STEREO TUNED: 0.8V
DOLBY ON: 4.2V
FL1
BAND SELECT
S1
AM
FM MONO
FM ST
S603 DIRECTION MODE
S306 DOLBY NR
S305 TAPE SELECT
METAL
NORMAL
S304 FUNCTION
TAPE
RADIO
LINE IN
CNJ301
S303 RECORD/PLAYBACK
CNJ601
J302 MIXING MIC
ON: 3.5V
ON: 0V
2Vp-p
0.8mSEC
S601 TIMER
PLAY — OFF — REC
A MOMENT 0.6V
(MD CHASSIS)
J304
S301 POWER
S602 EJECT DET
DC POWER ON: 9V
AC: 10.8V
S408 REC MUTE
S406 PAUSE
D403
(PAUSE)
IC1
IC2
IC101
IC102
IC201
IC202
IC301
IC302
IC303
IC601
SONY
1-612-952-

4-2. SCHEMATIC DIAGRAM

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note: Voltages are measured with a VOM (50kΩ/V).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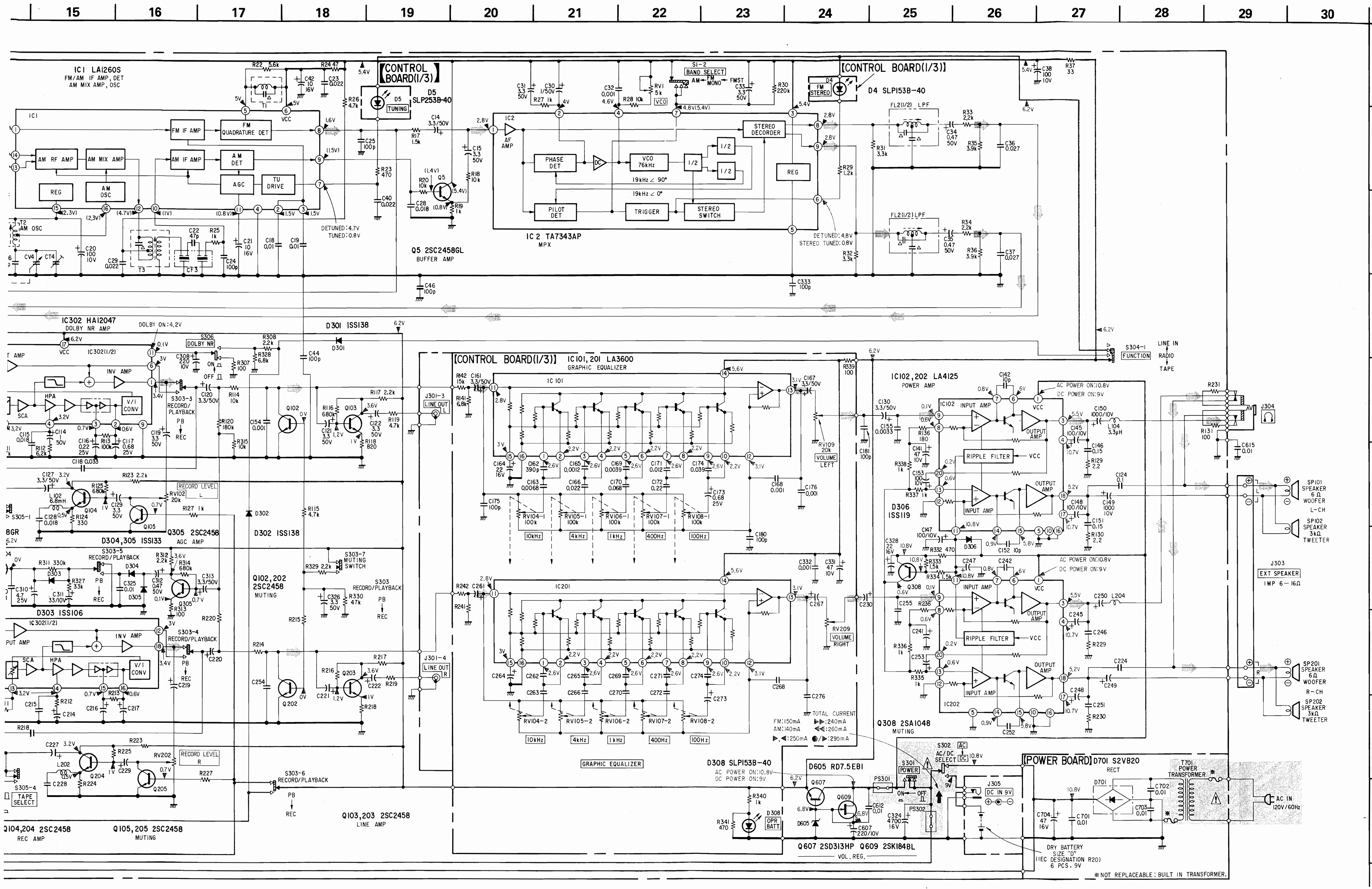
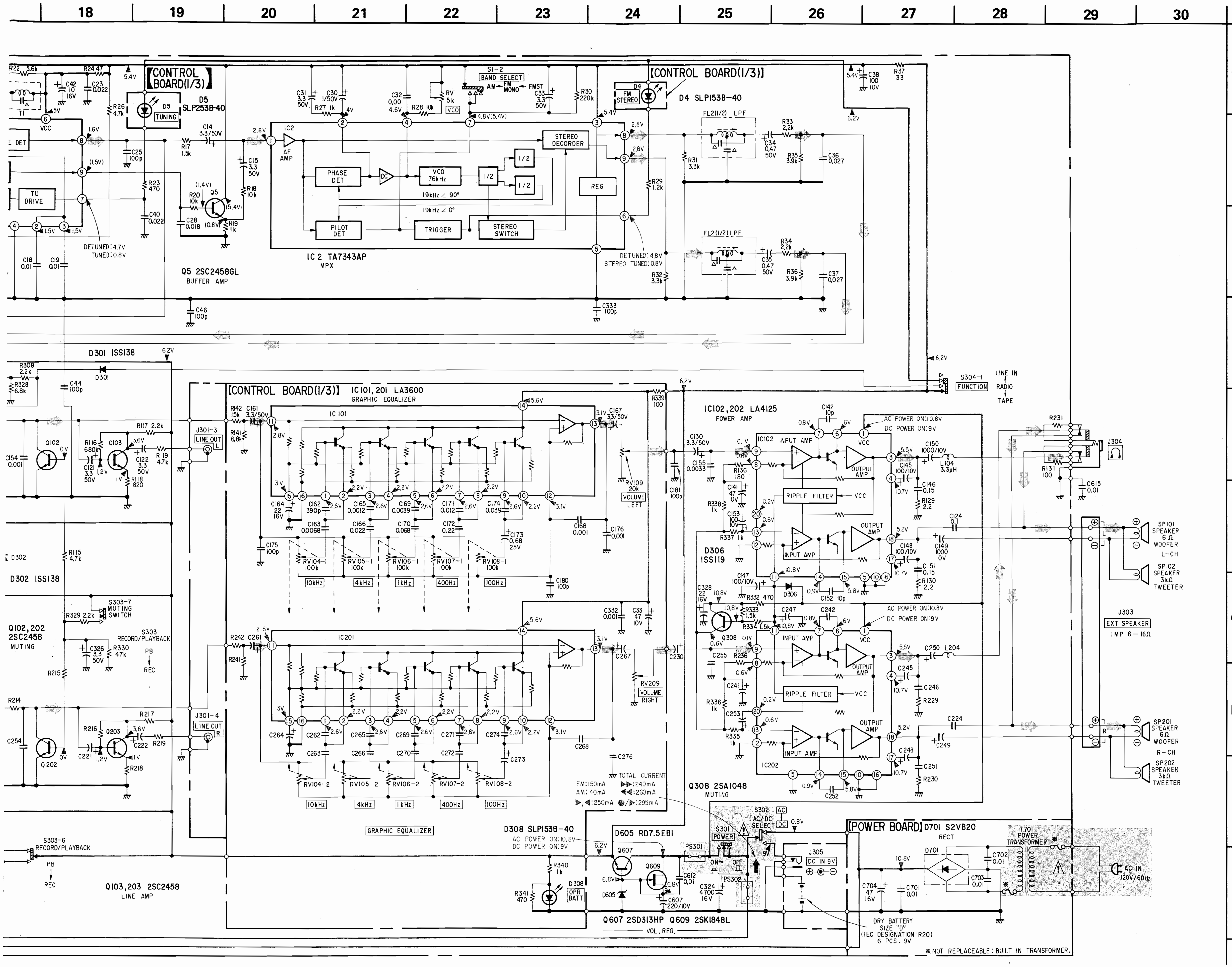
16
A
B
C
D
E
F
G
H
I
J
K
[MAIN BOARD]
IC303 LA2010 AMS
Q307 2SC2458 SWITCHING (AMS)
HOLD
RESET
COMP 1
COMP 2
AMP
[BUTTON BOARD(1/2)]
S603 DIRECTION MODE
IC601 TC9310N-049 SYSTEM CONTROL
D401,402 SLP235B
D403 SLP435B
D404 SLP135B
S602 EJECT DET
D601,602 ISS119
S408 REC MUTE
Q604—606 2SC2458 SOLENOID DRIVE
D606—608 ISS119
PM901 SOLENOID (FWD)
PM902 SOLENOID (FF)
PM903 SOLENOID (REW)
S901 (A TAB) ERASE PROOF
S902 (B TAB) ERASE PROOF
Q602 2SC2458 TIMER STAND BY DET
S601 TIMER
PLAY—OFF—REC
D609 RD5.1EB1
D614 ISS119
VOLTAGE: VARIABLE BY THE LOCATION OF THE REEL TABLE
0.6V OR 5.4V
[COUNTER BOARD]
D901 TLR213
Q901 2SC9458 CURRENT AMP
Q902 PH103-L SPEED-DETECTION
Q603 2SC2458 SWITCHING
Q601 2SC2458 CLOCK SWITCH
D603,604,610 ISS119
Q608 2SD788 MOTOR DRIVE
AC POWER ON:10.8V
DC POWER ON:9V
M901 DNE-6500A MOTOR
ANT FM TELESCOPIC ANTENNA
D1,2 ISS119
Q1 2SK193E FM RF AMP
Q2 2SC2839E FM MIX AMP
Q3 2SC2724C FM IF AMP
IC1 LA1260S FM/AM IF AMP, DET AM MIX AMP, OSC
FM IF AMP
AM RF AMP
AM MIX AMP
AM IF AMP
REG
AM OSC
S1-1 BAND SELECT
FERRITE-ROD ANTENNA
Q4 2SC2840DL FM OSC
D3 SD113
IC301 LA3181 PREAMP
Q101,201 2SC2458 MUTING
Q303 2SC3064E AGC AMP
IC302 HA12047 DOLBY NR AMP
DOLBY ON:4.2V
J301-1 LINE IN L
HRP101-1 REC/PB HEAD L-CH
NORMAL:10.5VAC METAL:9.5VAC
S303-1 RECORD/PLAYBACK
PLAYBACK LEVEL L
S304-2 FUNCTION
LINE IN RADIO TAPE
INPUT AMP
INV AMP
SCA
HPA
V/I CONV
S305 TAPE SELECT NORMAL METAL
Q301 2SC2458L MIC AMP
J302 MIXING MIC
Q304 2SC2458GR AGC AMP
D304,305 ISS133
D303 ISS106
J301-2 LINE IN R
HRP101-2 REC/PB HEAD R-CH
PLAYBACK LEVEL R
S303-2 RECORD/PLAYBACK
HE101 ERASING HEAD
CP301 BIAS OSC UNIT
RECORD BIAS
S307 ISS
Q306 2SB808 BIAS SWITCH
NORMAL:5.6V METAL:5.4V
S305-4 TAPE SELECT
Q104,204 2SC2458 REC AMP
Q105,205 2SC2458 MUTING
S303-3 RECORD/PLAYBACK
S303-4 RECORD/PLAYBACK
S303-5 RECORD/PLAYBACK



IC1 LA1260S
FM/AM IF AMP, DET
AM MIX AMP, OSC
FM IF AMP
FM QUADRATURE DET
AM RF AMP
AM MIX AMP
AM IF AMP
AM DET
AGC
TU DRIVE
REG
AM OSC
T2 AM OSC
DETUNED: 4.7V
TUNED: 0.8V
[CONTROL BOARD(1/3)]
D5 SLP253B-40
TUNING
Q5 2SC2458GL
BUFFER AMP
IC2 TA7343AP
MPX
AF AMP
PHASE DET
VCO 76kHz
19kHz ∠ 90°
19kHz ∠ 0°
1/2
STEREO DECORDER
PILOT DET
TRIGGER
STEREO SWITCH
S1-2
BAND SELECT
AM ← FM MONO → FMST
RV1 5k VCO
FM STEREO
D4 SLP153B-40
FL2(1/2) LPF
DETUNED: 4.8V
STEREO TUNED: 0.8V
IC302 HA12047
DOLBY NR AMP
DOLBY ON: 4.2V
S306 DOLBY NR
D301 1SS138
INV AMP
HPA
SCA
V/I CONV
S303-3 RECORD/PLAYBACK
PB REC
IC101, 201 LA3600
GRAPHIC EQUALIZER
RV104-1 100k 10kHz
RV105-1 100k 4kHz
RV106-1 100k 1kHz
RV107-1 100k 400Hz
RV108-1 100k 100Hz
GRAPHIC EQUALIZER
RV109 20k VOLUME LEFT
RV209 VOLUME RIGHT
J301-3 LINE OUT L
J301-4 LINE OUT R
IC102, 202 LA4125
POWER AMP
INPUT AMP
OUTPUT AMP
RIPPLE FILTER
AC POWER ON: 10.8V
DC POWER ON: 9V
D306 1SS119
Q308 2SA1048
MUTING
S304-1 FUNCTION
LINE IN
RADIO
TAPE
J304
J303 EXT SPEAKER IMP 6 – 16Ω
SP101 SPEAKER 6Ω WOOFER L-CH
SP102 SPEAKER 3kΩ TWEETER
SP201 SPEAKER 6Ω WOOFER R-CH
SP202 SPEAKER 3kΩ TWEETER
RECORD LEVEL L
RECORD LEVEL R
Q104 Q105
Q305 2SC2458
AGC AMP
D304, 305 1SS133
D303 1SS106
S303-5 RECORD/PLAYBACK
S303-7 MUTING SWITCH
S303 RECORD/PLAYBACK
Q102, 202 2SC2458
MUTING
IC302(1/2)
PUT AMP
S303-4 RECORD/PLAYBACK
S305-4 TAPE SELECT
S303-6 RECORD/PLAYBACK
Q103, 203 2SC2458
LINE AMP
Q104, 204 2SC2458
REC AMP
Q105, 205 2SC2458
MUTING
D302 1SS138
TOTAL CURRENT
FM: 150mA
AM: 140mA
240mA
260mA
250mA
295mA
D308 SLP153B-40
AC POWER ON: 10.8V
DC POWER ON: 9V
D605 RD7.5EB1
Q607 2SD313HP
Q609 2SK184BL
VOL. REG.
D308 OPR BATT
S301 POWER
S302 AC AC/DC SELECT DC
PS301
PS302
J305 DC IN 9V
[POWER BOARD]
D701 S2VB20
RECT
T701 POWER TRANSFORMER
AC IN 120V/60Hz
DRY BATTERY SIZE "D" (IEC DESIGNATION R20) 6 PCS. 9V
※NOT REPLACEABLE: BUILT IN TRANSFORMER.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A
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C
D
E
F
G
H
I
J
CONTROL BOARD(1/3)
D5 SLP253B-40
TUNING
IC2 AF AMP
S1-2 BAND SELECT
AM FM MONO FMST
PHASE DET
VCO 76kHz
19kHz ∠ 90°
19kHz ∠ 0°
1/2
STEREO DECORDER
REG
PILOT DET
TRIGGER
STEREO SWITCH
IC 2 TA7343AP
MPX
Q5 2SC2458GL
BUFFER AMP
DETUNED: 4.7V
TUNED: 0.8V
DETUNED: 4.8V
STEREO TUNED: 0.8V
D4 SLP153B-40
FM STEREO
FL2(1/2) LPF
TU DRIVE
D301 ISS138
D302 ISS138
Q102,202
2SC2458
MUTING
S303-7 MUTING SWITCH
S303 RECORD/PLAYBACK
PB
REC
S303-6 RECORD/PLAYBACK
Q103,203 2SC2458
LINE AMP
J301-3 LINE OUT L
J301-4 LINE OUT R
IC101,201 LA3600
GRAPHIC EQUALIZER
IC 101
IC201
10kHz
4kHz
1kHz
400Hz
100Hz
GRAPHIC EQUALIZER
RV109 20k VOLUME LEFT
RV209 VOLUME RIGHT
TOTAL CURRENT
FM: 150mA
AM: 140mA
▶▶: 240mA
◀◀: 260mA
▶, ◀: 250mA
●/▶: 295mA
S304-1 FUNCTION
LINE IN
RADIO
TAPE
IC102,202 LA4125
POWER AMP
AC POWER ON: 10.8V
DC POWER ON: 9V
IC102 INPUT AMP
OUTPUT AMP
RIPPLE FILTER
VCC
INPUT AMP
D306 ISS119
Q308 2SA1048
MUTING
IC202
J304
SP101 SPEAKER 6Ω WOOFER
L-CH
SP102 SPEAKER 3kΩ TWEETER
J303 EXT SPEAKER
IMP 6−16Ω
SP201 SPEAKER 6Ω WOOFER
R-CH
SP202 SPEAKER 3kΩ TWEETER
D308 SLP153B-40
D605 RD7.5EBI
Q607
Q609
OPR BATT
Q607 2SD313HP Q609 2SK184BL
VOL.REG.
S302 AC/DC SELECT
S301 POWER
PS301
PS302
ON OFF
J305 DC IN 9V
POWER BOARD
D701 S2VB20
RECT
T701 POWER TRANSFORMER
AC IN 120V/60Hz
DRY BATTERY SIZE "D" (IEC DESIGNATION R20) 6 PCS. 9V
*NOT REPLACEABLE: BUILT IN TRANSFORMER.

Note:

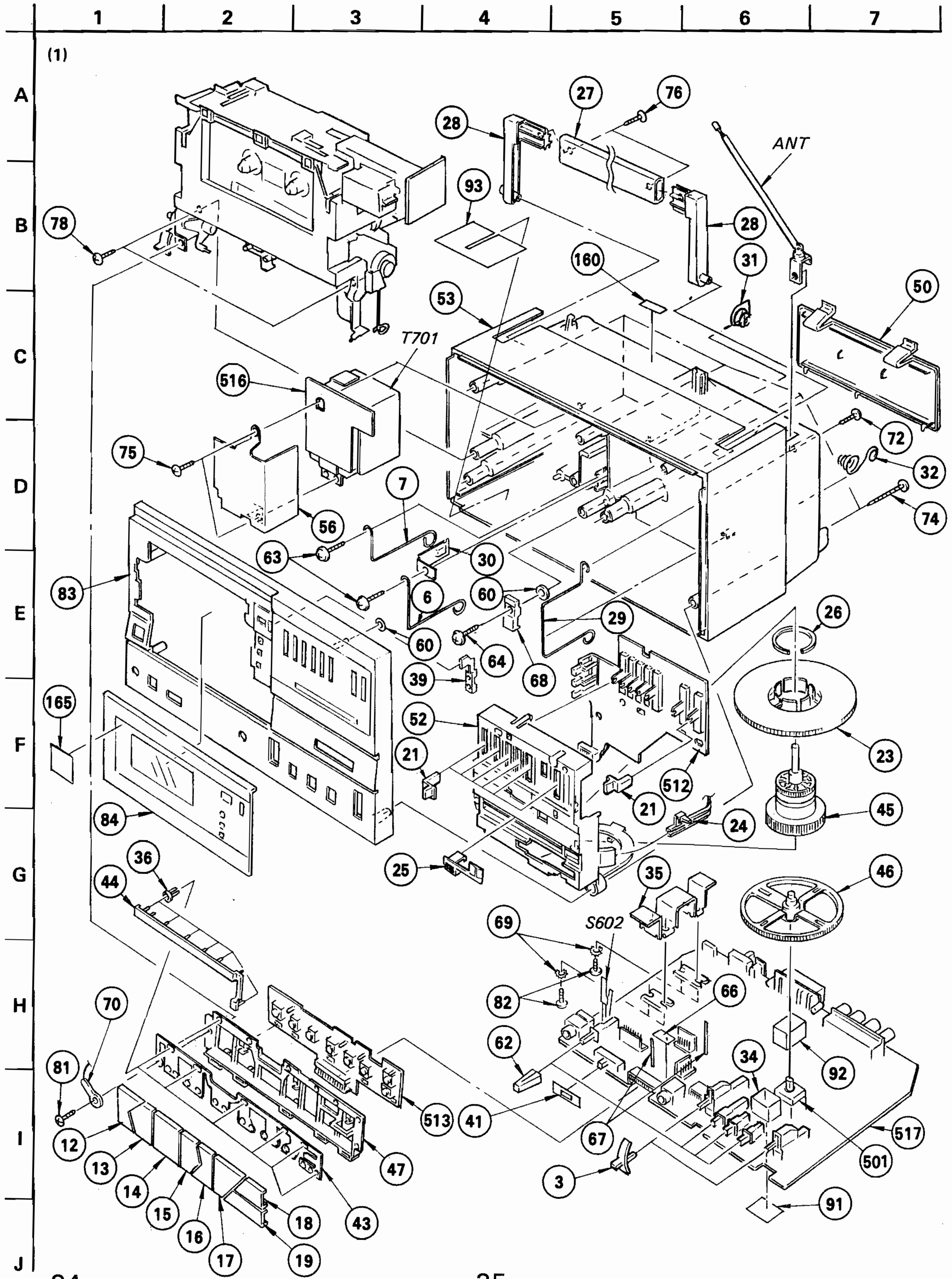
- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ➩ : signal path.
- Components for right channel have same values as for left channel. Reference numbers are coded from 200.
- △ : internal component.
- ▭ : panel designation.
- Switch with sliding contact indicated by hatched lines shows shorting type.
- Switch

Ref. No.	Switch	Position
S1	BAND SELECT	FM
S301	POWER	OFF
S302	AC/DC	AC
S303	RECORD/PLAYBACK	PLAYBACK
S304	FUNCTION	RADIO
S305	TAPE SELECT	NORMAL
S306	DOLBY NR	OFF
S307	ISS	1
S401	REW	OFF
S402	REV	OFF
S403	STOP	OFF
S404	FWD	OFF
S405	FF	OFF
S406	PAUSE	OFF
S407	REC	OFF
S408	REC MUTE	OFF
S601	TIMER	OFF
S602	EJECT	OFF
S603	DIRECTION MODE	⇄
S901	ERASE PROOF	OFF
S902	ERASE PROOF	OFF

- ▬ : B+ bus.
- ▭ : adjustment for repair.
- AC voltage readings in the bias oscillator with a VTVM.
- Total current is measured with no cassette installed.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM (50 kΩ/V).
- ( ) : AM
- no mark : FM
- Voltage variations may be noted due to normal production tolerances.
- ▶ : PLAY ◀◀ : REW ● : REC
  ▶▶ : FF ◀ : REV ▮▮ : PAUSE
- Waveforms are taken to ground in STOP mode by using oscilloscope.
  Voltage variations may be noted due to normal production tolerances.

SECTION 5

EXPLODED VIEWS AND PARTS LIST


(1)
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68
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165
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23
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512
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46
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S602
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92
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81
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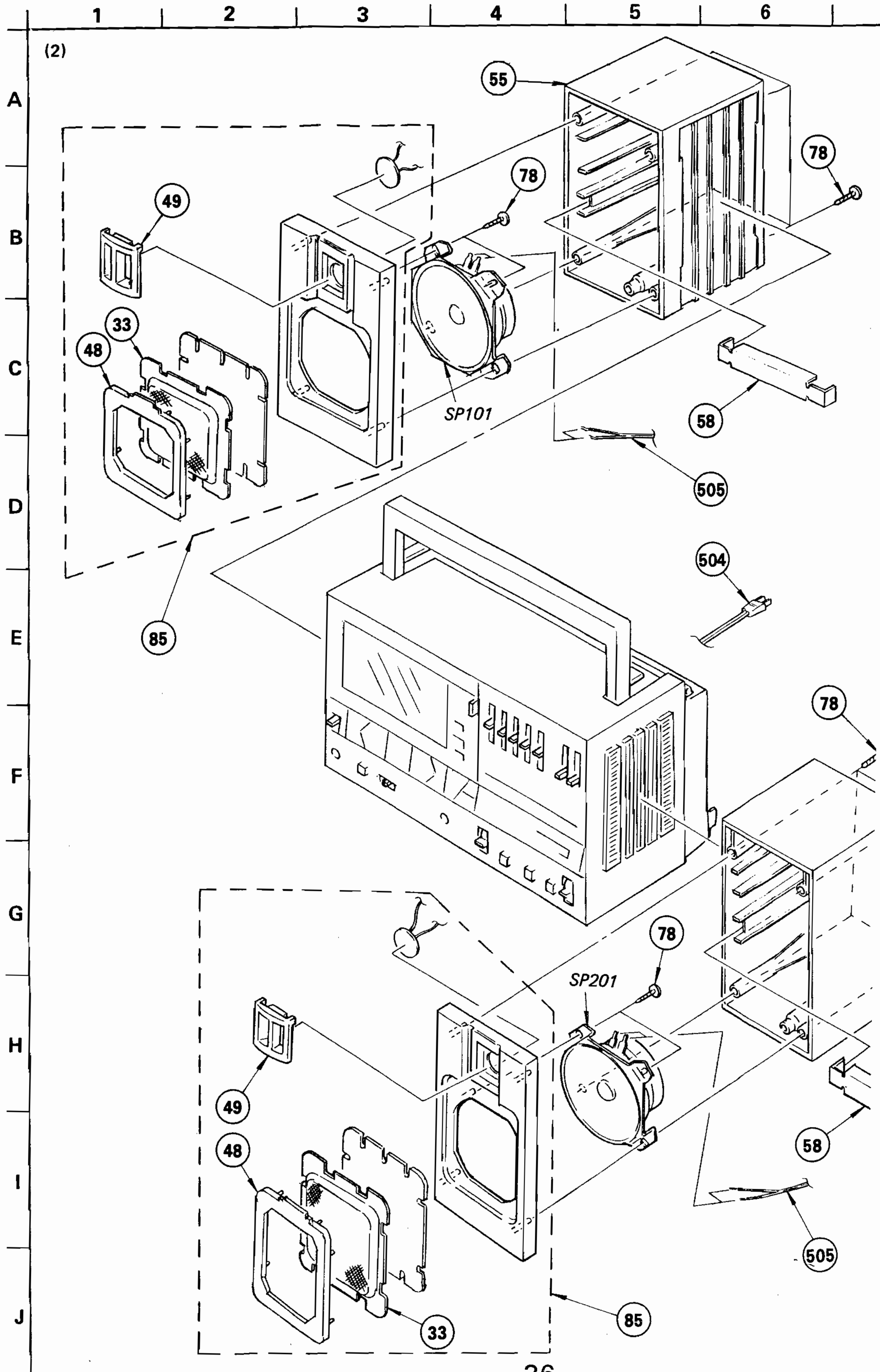
(2)
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SP101
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505
504
85
78
78
SP201
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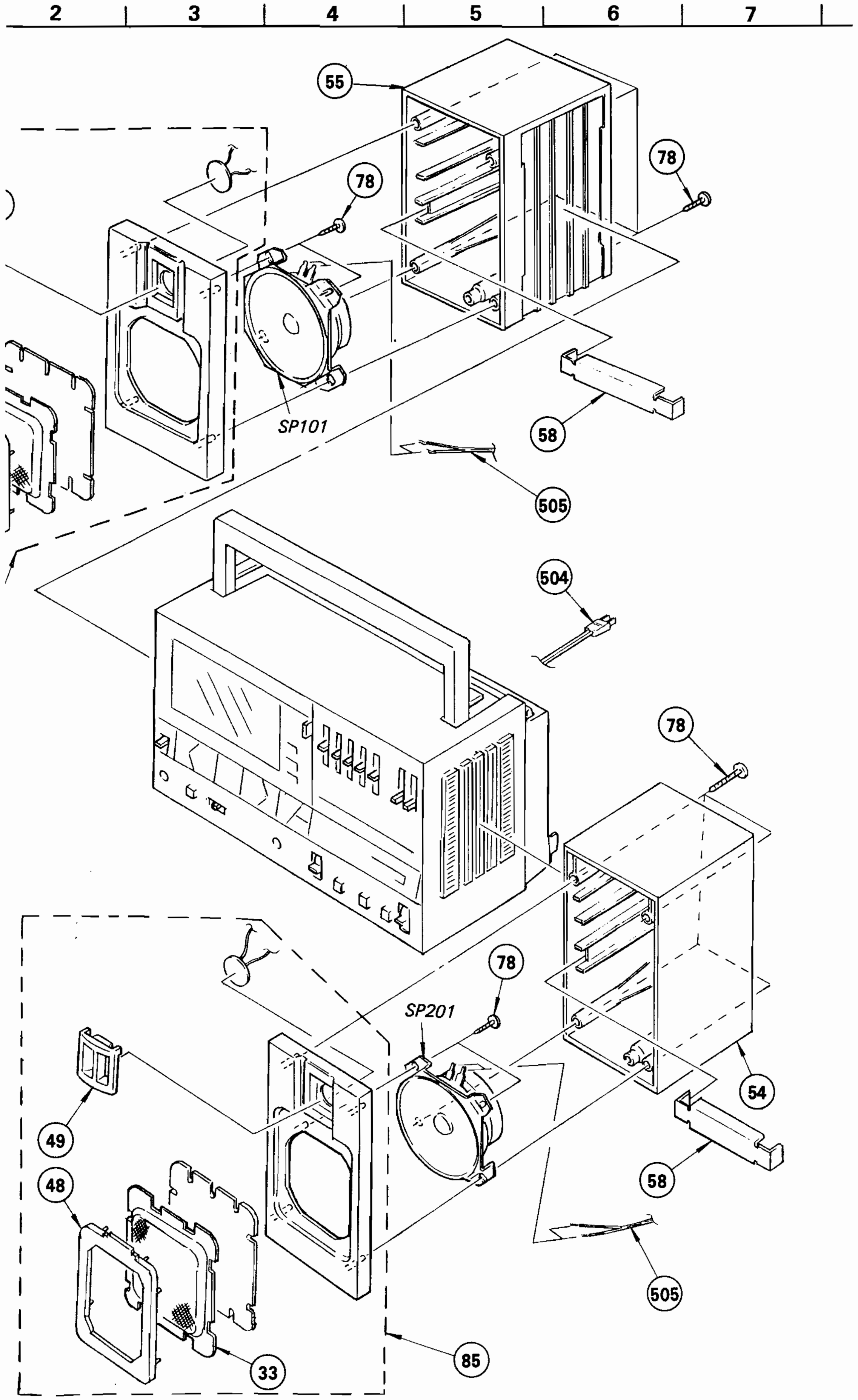
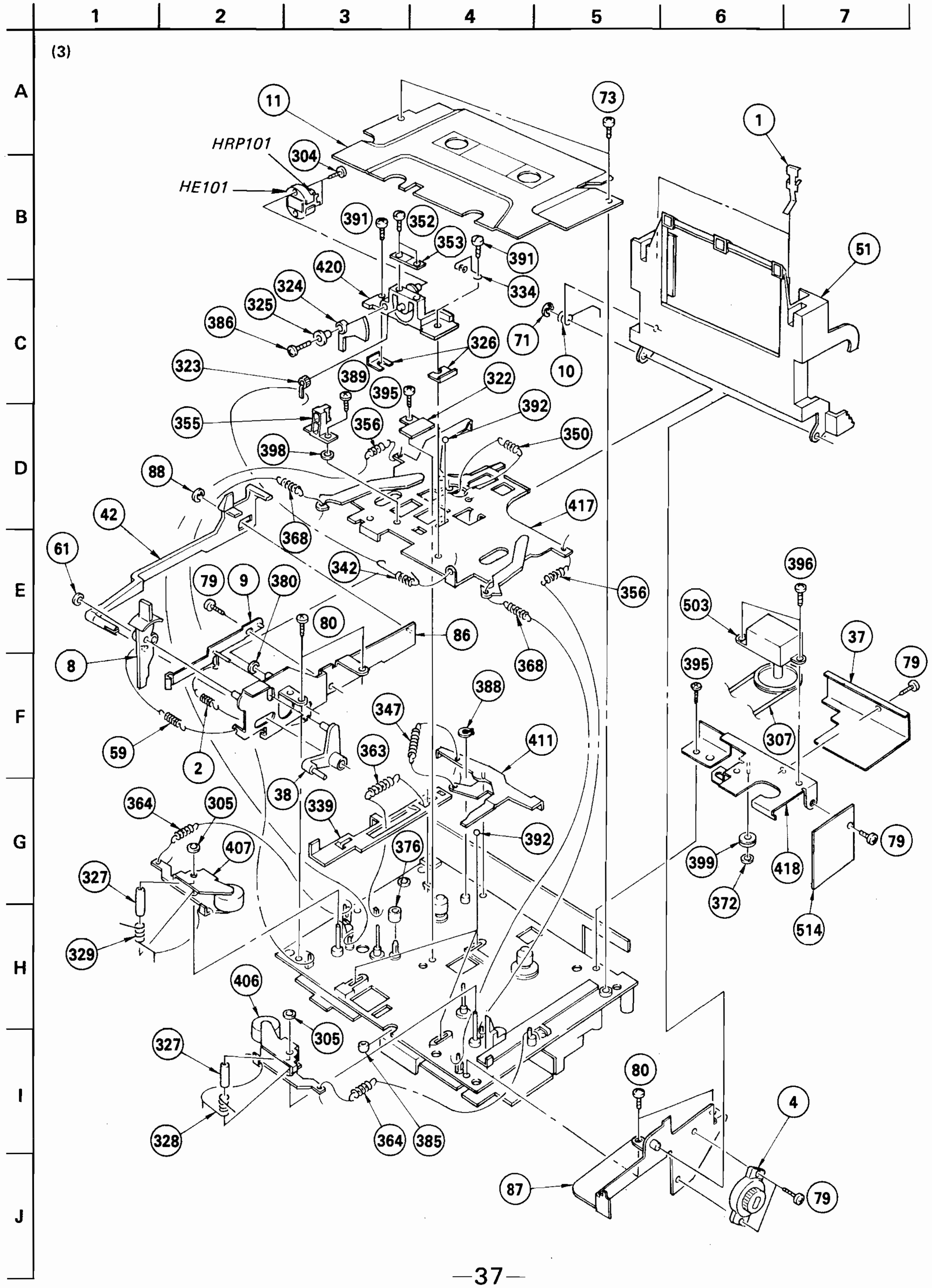
48
58
505
33
85


SP101
SP201


(3)
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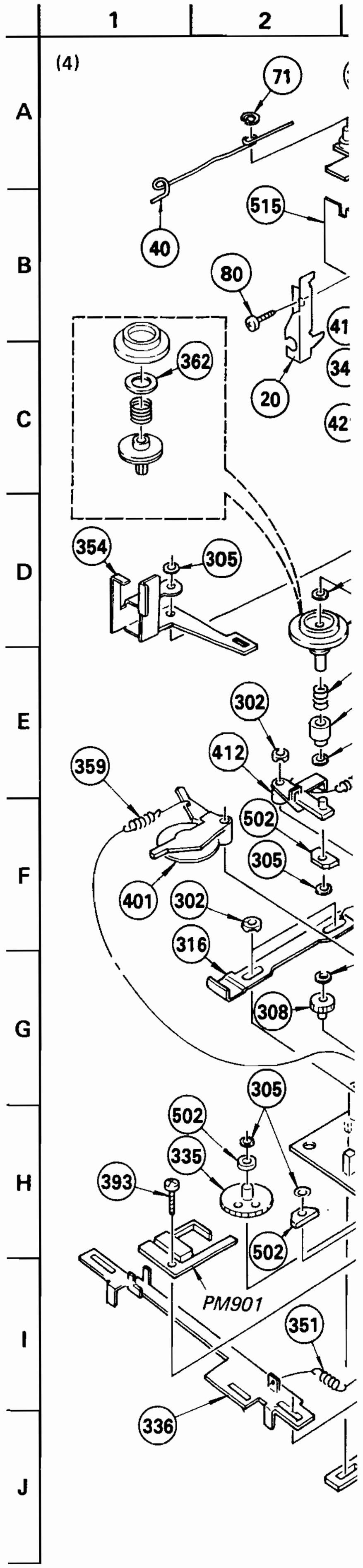
HRP101
HE101


(4)
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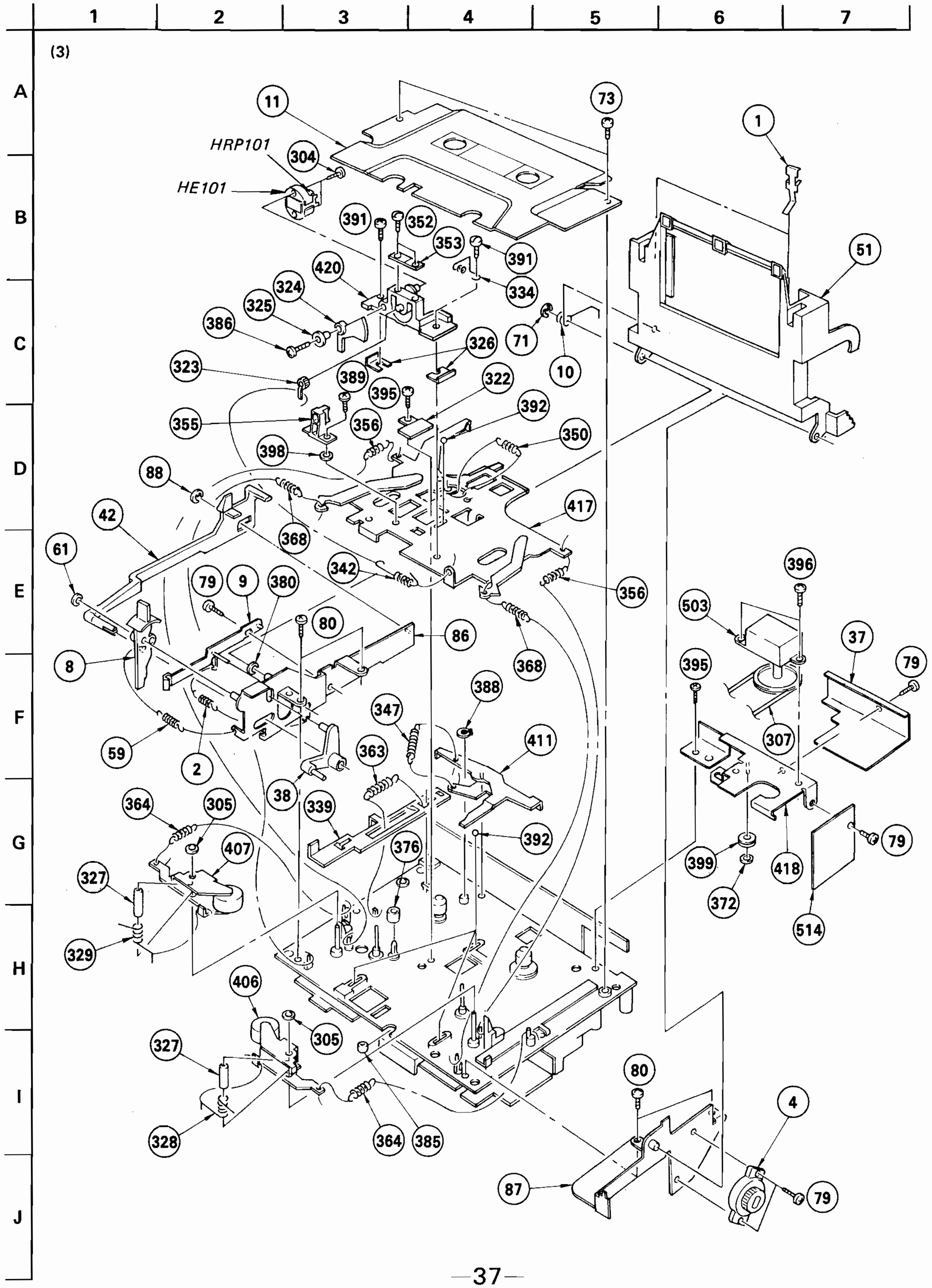
PM901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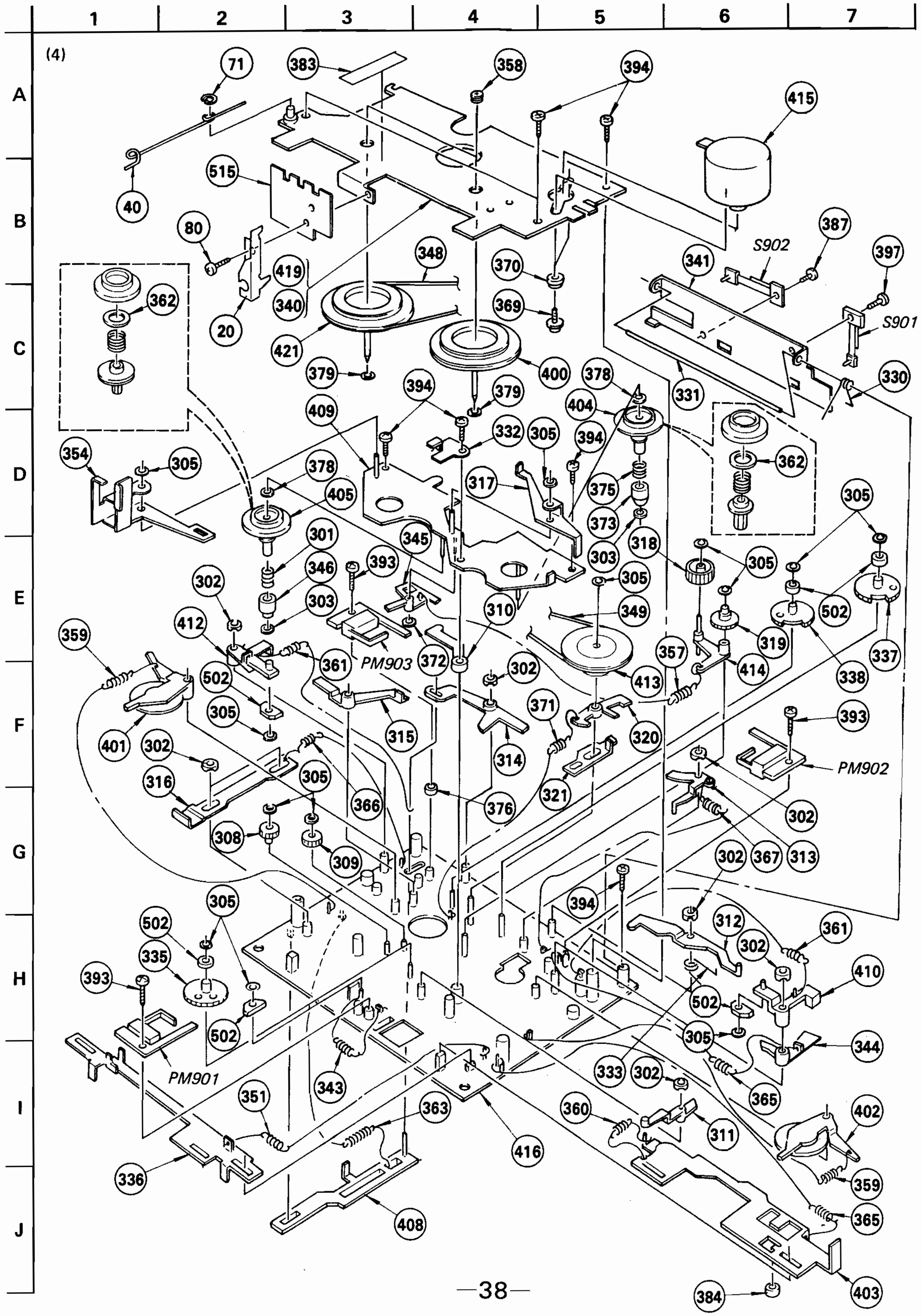
(3)
HRP101
HE101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(4)
S902
S901
PM903
PM902
PM901

MECHANISM SECTION

No.	Part No.	Description
342	3-313-807-03	SPRING (POWER TENSION), TENSION
342	3-313-807-04	SPRING (POWER TENSION), TENSION
342	3-313-807-05	SPRING (POWER TENSION), TENSION
343	3-313-808-00	SPRING, TENSION
344	3-313-811-00	BRAKE (S)
345	3-313-812-00	BRAKE (T)
346	3-313-814-00	CLAW (T), REEL
347	3-313-815-00	SPRING, TENSION
348	3-313-816-00	BELT, SQUARE (71X1.3)
349	3-313-823-00	BELT, SQUARE (55.6X1.3)
350	3-313-824-00	SPRING, TENSION
351	3-313-828-00	SPRING, TENSION
352	3-313-841-01	SCREW, ADJUSTMENT
353	3-313-842-01	SPRING, LEAF
354	3-313-846-01	LEVER (C), REC
355	3-319-287-01	GUIDE, TAPE
356	3-319-811-01	SPRING, TENSION
357	3-472-222-XX	SPRING, TENSION
368	3-489-073-00	SCREW, THRUST
359	3-507-111-00	SPRING, TENSION
360	3-515-167-00	SPRING, TENSION
361	3-534-558-00	SPRING, TENSION
362	3-535-625-00	WASHER, HANDLE
363	3-539-234-00	SPRING, TENSION
364	3-542-475-00	SPRING, TENSION
365	3-542-481-00	SPRING, TENSION
366	3-545-542-00	SPRING, TENSION
367	3-547-668-00	SPRING, TENSION
368	3-557-579-00	SPRING, TENSION
369	3-570-027-00	SCREW, MOTOR
370	3-570-118-00	CUSHION, MOTOR
371	3-570-552-00	SPRING, TENSION
372	3-570-615-00	POLY-WASHER (DIA.1.2)
373	3-571-844-00	CRAW, REEL
374	3-571-850-00	SPRING, COMPRESSION
375	3-571-850-11	SPRING, COMPRESSION
376	3-652-612-21	CUSHION (B)
377	3-701-437-01	WASHER
378	3-701-437-11	WASHER
379	3-701-438-11	WASHER, 2.5
380	3-701-439-11	WASHER
381	3-701-445-11	WASHER, 7
382	3-831-441-11	CUSHION (B)
383	3-831-441-XX	CUSHION (B), CABINET
384	3-538-051-00	RUBBER, BRAKE
385	4-874-259-00	RUBBER, SHOCK ABSORBING
386	7-621-255-55	SCREW +P 2X8
387	7-621-772-18	SCREW +B 2X4
388	7-624-193-08	STOP RING 3, GRIP
389	7-627-553-28	SCREW, PRECISION +P 2X2.5
390	7-627-556-48	SCREW +P 2.6X4.5
391	7-628-254-05	SCREW +PS 2.6X5
392	7-671-111-11	STEEL, BOUL 1.5MM
393	7-685-105-14	TPG +P 2X8, TYPE 2, NON-SLIT
394	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3
395	7-685-790-04	SCREW +BVTT 2.6X4 (S)
396	7-685-852-01	SCREW +BVTT 2X5 (S)
397	7-685-852-04	SCREW +BVTT 2X5 (S)
398	7-688-001-13	W 2, MIDDLE
399	X-3313-308-1	PULLEY, MOTOR
400	X-3313-732-1	FLYWHEEL (N) ASSY
401	X-3313-705-0	LEVER (N) ASSY, IDLER
402	X-3313-706-0	LEVER (R) ASSY, IDLER
403	X-3313-707-0	SLIDER (A) ASSY, NR
404	X-3313-708-0	TABLE ASSY, REEL, SUPPLY
405	X-3313-709-0	TABLE ASSY, REEL, TAKE-UP
406	X-3313-710-0	PINCH LEVER (N) SUB ASSY
407	X-3313-711-0	PINCH LEVER (R) SUB ASSY
408	X-3313-712-0	SLIDER (N) ASSY, PAUSE
409	X-3313-716-0	CHASSIS SUB ASSY, SUB
410	X-3313-717-0	LEVER SUB ASSY, FF LOCK
411	X-3313-718-2	LEVER ASSY, PAUSE
412	X-3313-719-0	LEVER SUB ASSY, REW LOCK
413	X-3313-720-0	PULLEY ASSY, FR
414	X-3313-722-0	LEVER (B) ASSY, FR
415	X-3313-723-0	MOTOR SUB ASSY
416	*X-3313-724-0	CHASSIS ASSY, MECHANICAL
417	X-3313-728-1	BASE SUB ASSY, HEAD
418	X-3313-730-3	BRACKET ASSY, COUNTER
419	*X-3313-731-1	RETAINER ASSY, THRUST
420	X-3319-204-1	BRACKET ASSY, HEAD
421	X-3313-703-0	FLYWHEEL ASSY

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···,
UPC···: μPC,
UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
501	....				
502	1-452-202-00	MAGNET			
503	1-548-564-31	COUNTER, TAPE (SMALL TYPE)			
504	⚠.1-551-628-00	CORD, POWER			
505	1-557-463-11	CORD, CONNECTION (SPEAKER)			
506	....				
507	*1-561-557-00	CONTACT, RECEPTACLE			
508	1-561-581-00	HOUSING, CONNECTOR 2P			
509	1-561-586-00	HOUSING, CONNECTOR 5P			
510	1-561-587-00	HOUSING, CONNECTOR 6P			
511	*1-561-588-00	HOUSING, CONNECTOR 8P			
512	*1-612-947-11	PC BOARD, CONTROL			
513	*1-612-948-11	PC BOARD, BUTTON			
514	*1-612-949-11	PC BOARD, COUNTER			
515	*1-612-950-11	PC BOARD, TRANSLATION			
516	*1-612-951-11	PC BOARD, POWER			
517	*A-3215-639-A	PC BOARD SUB ASSY, MAIN			
ANT	1-501-309-11	ANTENNA, TELESCOPIC (FM)			
C1	1-102-957-00	CERAMIC	18PF	10%	50V
C2	1-101-004-00	CERAMIC	0.01MF		50V
C3	1-102-807-00	CERAMIC	5PF	1PF	50V
C4	1-102-816-00	CERAMIC	120PF	5%	50V
C5	1-101-004-00	CERAMIC	0.01MF		50V
C6	1-101-004-00	CERAMIC	0.01MF		50V
C7	1-101-004-00	CERAMIC	0.01MF		50V
C8	1-101-004-00	CERAMIC	0.01MF		50V
C9	1-102-943-00	CERAMIC	6PF	0.5PF	50V
C10	1-102-514-00	CERAMIC	22PF	5%	50V
C11	1-102-505-00	CERAMIC	6PF	0.5PF	50V
C12	1-162-187-31	CERAMIC	1PF	20%	50V
C13	1-123-610-00	ELECT	0.47MF	20%	50V
C14	1-123-382-00	ELECT	3.3MF	20%	50V
C15	1-123-382-00	ELECT	3.3MF	20%	50V
C16	1-102-864-00	CERAMIC	5PF	0.5PF	50V
C17	1-101-005-00	CERAMIC	0.022MF		50V
C18	1-101-004-00	CERAMIC	0.01MF		50V
C19	1-101-004-00	CERAMIC	0.01MF		50V
C20	1-123-307-00	ELECT	100MF	20%	10V
C21	1-123-356-00	ELECT	10MF	20%	16V
C22	1-101-880-00	CERAMIC	47PF	5%	50V
C23	1-101-005-00	CERAMIC	0.022MF		50V
C24	1-102-973-00	CERAMIC	100PF	5%	50V
C25	1-102-973-00	CERAMIC	100PF	5%	50V
C26	1-162-191-31	CERAMIC	2.2PF	10%	50V
C27	1-101-005-00	CERAMIC	0.022MF		50V
C28	1-161-054-00	CERAMIC	0.018MF	10%	25V
C29	1-101-005-00	CERAMIC	0.022MF		50V
C30	1-123-380-00	ELECT	1MF	20%	50V
C31	1-123-382-00	ELECT	3.3MF	20%	50V
C32	1-161-938-00	CERAMIC	0.001MF	5%	50V
C33	1-123-382-00	ELECT	3.3MF	20%	50V
C34	1-123-610-00	ELECT	0.47MF	20%	50V
C35	1-123-610-00	ELECT	0.47MF	20%	50V
C36	1-161-018-00	CERAMIC	0.027MF	10%	25V
C37	1-161-018-00	CERAMIC	0.027MF	10%	25V
C38	1-123-307-00	ELECT	100MF	20%	10V
C39	1-123-356-00	ELECT	10MF	20%	16V
C40	1-101-005-00	CERAMIC	0.022MF		50V
C41	1-101-004-00	CERAMIC	0.01MF		50V
C42	1-123-356-00	ELECT	10MF	20%	16V
C43	1-101-004-00	CERAMIC	0.01MF		50V
C44	1-162-282-00	CERAMIC	100PF	10%	50V
C45	1-162-191-31	CERAMIC	2.2PF	10%	50V
C46	1-162-282-00	CERAMIC	100PF	10%	50V
C101	1-123-369-00	ELECT	4.7MF	20%	25V
C102	1-130-470-00	MYLAR	820PF	5%	50V
C103	1-102-074-00	CERAMIC	0.001MF	10%	50V
C104	1-123-306-00	ELECT	47MF	20%	10V
C105	1-130-487-00	MYLAR	0.022MF	5%	50V
C106	1-130-485-00	MYLAR	0.015MF	5%	50V
C107	1-123-382-00	ELECT	3.3MF	20%	50V
C108	1-102-110-00	CERAMIC	220PF	10%	50V
C109	1-101-367-00	CERAMIC	160PF	5%	50V
C110	1-123-382-00	ELECT	3.3MF	20%	50V
C111	1-161-043-00	CERAMIC	0.0022MF	10%	25V
C112	1-123-369-00	ELECT	4.7MF	20%	25V
C113	1-130-479-00	MYLAR	0.0047MF	5%	50V
C114	1-123-380-00	ELECT	1MF	20%	50V
C115	1-130-486-00	MYLAR	0.018MF	5%	50V
C116	1-127-475-91	ELECT(SOLID)	0.22MF	5%	25V
C117	1-127-478-91	ELECT(SOLID)	0.68MF	5%	25V
C118	1-130-489-00	MYLAR	0.033MF	5%	50V
C119	1-123-382-00	ELECT	3.3MF	20%	50V
C120	1-123-382-00	ELECT	3.3MF	20%	50V
C121	1-123-382-00	ELECT	3.3MF	20%	50V
C122	1-123-382-00	ELECT	3.3MF	20%	50V
C124	1-130-495-00	MYLAR	0.1MF	5%	50V
C126	1-130-475-00	MYLAR	0.0022MF	5%	50V
C127	1-123-382-00	ELECT	3.3MF	20%	50V
C128	1-130-486-00	MYLAR	0.018MF	5%	50V

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MF:μF, PF:μμF.

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- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C129	1-123-382-00	ELECT	3.3MF	20%	50V
C130	1-123-382-00	ELECT	3.3MF	20%	50V
C141	1-123-306-00	ELECT	47MF	20%	10V
C142	1-102-947-00	CERAMIC	10PF	5%	50V
C145	1-123-307-00	ELECT	100MF	20%	10V
C146	1-130-497-00	MYLAR	0.15MF	5%	50V
C147	1-123-307-00	ELECT	100MF	20%	10V
C148	1-123-307-00	ELECT	100MF	20%	10V
C149	1-123-311-00	ELECT	1000MF	20%	10V
C150	1-124-473-11	ELECT	1000MF	20%	10V
C151	1-130-497-00	MYLAR	0.15MF	5%	50V
C152	1-102-947-00	CERAMIC	10PF	5%	50V
C153	1-123-307-00	ELECT	100MF	20%	10V
C154	1-102-074-00	CERAMIC	0.001MF	10%	50V
C155	1-161-045-00	CERAMIC	0.0033MF	10%	50V
C156	1-101-367-00	CERAMIC	160PF	5%	50V
C161	1-123-382-00	ELECT	3.3MF	20%	50V
C162	1-102-113-00	CERAMIC	390PF	10%	50V
C163	1-130-481-00	MYLAR	0.0068MF	5%	50V
C164	1-123-330-00	ELECT	22MF	20%	16V
C165	1-130-472-00	MYLAR	0.0012MF	5%	50V
C166	1-130-487-00	MYLAR	0.022MF	5%	50V
C167	1-123-382-00	ELECT	3.3MF	20%	50V
C168	1-102-074-00	CERAMIC	0.001MF	10%	50V
C169	1-130-478-00	MYLAR	0.0039MF	5%	50V
C170	1-130-493-00	MYLAR	0.068MF	5%	50V
C171	1-130-484-00	MYLAR	0.012MF	5%	50V
C172	1-136-169-00	FILM	0.22MF	5%	50V
C173	1-127-478-91	ELECT(SOLID)	0.68MF	5%	25V
C174	1-136-160-00	MYLAR	0.039MF	5%	50V
C175	1-102-106-00	CERAMIC	100PF	10%	50V
C176	1-162-110-00	CERAMIC	0.001MF	10%	50V
C177	1-102-106-00	CERAMIC	100PF	10%	50V
C178	1-102-106-00	CERAMIC	100PF	10%	50V
C179	1-102-106-00	CERAMIC	100PF	10%	50V
C180	1-102-106-00	CERAMIC	100PF	10%	50V
C181	1-102-106-00	CERAMIC	100PF	10%	50V
C278	1-102-117-00	CERAMIC	560PF	10%	50v
C301	1-123-379-00	ELECT	0.47MF	20%	50V
C302	1-102-074-00	CERAMIC	0.001MF	10%	50V
C303	1-123-306-00	ELECT	47MF	20%	10V
C304	1-123-379-00	ELECT	0.47MF	20%	50V
C305	1-123-307-11	ELECT	100MF	20%	10V
C306	1-123-306-00	ELECT	47MF	20%	10V
C307	1-123-308-00	ELECT	220MF	20%	10V
C308	1-123-308-00	ELECT	220MF	20%	10V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C309	1-123-356-00	ELECT	10MF	20%	16V
C310	1-123-369-00	ELECT	4.7MF	20%	25V
C311	1-123-318-00	ELECT	33MF	20%	10V
C312	1-123-379-00	ELECT	0.47MF	20%	50V
C313	1-123-382-00	ELECT	3.3MF	20%	50V
C314	1-106-182-00	MYLAR	0.0027MF	5%	100V
C315	1-106-174-00	MYLAR	0.0012MF	5%	100V
C316	1-123-330-00	ELECT	22MF	20%	16V
C317	1-123-306-00	ELECT	47MF	20%	10V
C318	1-123-307-00	ELECT	100MF	20%	10V
C319	1-123-379-00	ELECT	0.47MF	20%	50V
C320	1-123-382-00	ELECT	3.3MF	20%	50V
C321	1-123-379-00	ELECT	0.47MF	20%	50V
C322	1-130-495-00	MYLAR	0.1MF	5%	50V
C323	1-123-381-00	ELECT	2.2MF	20%	50V
C324	1-123-327-00	ELECT	4700MF	20%	16V
C325	1-161-013-00	CERAMIC	0.01MF	10%	25V
C326	1-123-382-00	ELECT	3.3MF	20%	50V
C327	1-123-330-00	ELECT	22MF	20%	16V
C328	1-123-330-00	ELECT	22MF	20%	16V
C330	1-101-001-00	CERAMIC	0.001MF		50V
C331	1-123-306-00	ELECT	47MF	20%	10V
C332	1-162-110-00	CERAMIC	0.001MF	10%	50V
C333	1-102-106-00	CERAMIC	100PF	10%	50V
C601	1-161-183-00	CERAMIC	0.0068MF	5%	25V
C602	1-130-480-00	MYLAR	0.0056MF	5%	50V
C603	1-123-356-00	ELECT	10MF	20%	16V
C604	1-123-318-00	ELECT	33MF	20%	10V
C605	1-123-308-00	ELECT	220MF	20%	10V
C606	1-123-308-00	ELECT	220MF	20%	10V
C607	1-123-308-00	ELECT	220MF	20%	10V
C608	1-123-306-00	ELECT	47MF	20%	10V
C609	1-161-013-00	CERAMIC	0.01MF	10%	25V
C611	1-101-004-00	CERAMIC	0.01MF		50V
C612	1-101-004-00	CERAMIC	0.01MF		50V
C613	1-123-321-00	CAP, ELECT	220MF		16V
C614	1-123-382-00	ELECT	3.3MF	20%	50V
C615	1-101-004-00	CAP, CERAMIC	0.01MF		16V
C701	1-101-004-00	CERAMIC	0.01MF		50V
C702	1-101-004-00	CERAMIC	0.01MF		50V
C703	1-101-004-00	CERAMIC	0.01MF		50V
C704	1-123-670-00	ELECT	47MF	20%	16V
C901	1-123-306-00	ELECT	47MF	20%	10V
C902	1-123-387-00	ELECT	47MF	20%	16V
CF1	1-527-795-71	FILTER, CERAMIC			
CF2	1-527-795-71	FILTER, CERAMIC			
CF3	1-527-865-00	FILTER, CERAMIC			

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In each case, U : μ, for example:
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UPC···: μPC,
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ELECTRICAL PARTS

Ref.No.	Part No.	Description
CNJ301	1-561-414-11	SOCKET, CONNECTOR 4P
CNJ701	1-561-146-31	CONNECTOR, HOUSING 2P
CNJ601*	1-562-563-11	SOCKET, CONNECTOR 13P
CNP301*	1-564-585-11	CONNECTOR, PIN (U TYPE) 9P
CNP401*	1-564-586-11	CONNECTOR, PIN (U TYPE) 13P
CNP701*	1-508-796-00	PIN, CONNECTOR 2P
CNP901*	1-560-468-00	PIN, CONNECTOR 5P
CNP902*	1-560-470-00	PIN, CONNECTOR 8P
CNP903*	1-560-455-00	PIN, CONNECTOR 2P
CNP904*	1-560-469-00	PIN, CONNECTOR 6P
CNP905*	1-564-187-00	PIN, CONNECTOR 1P
CP301	1-464-261-00	OSCILLATOR UNIT, BIAS
CT1-4	1-151-466-11	CAP, TUNING, POLYETHYLENE
CV1-4	1-151-466-11	CAP, TUNING, POLYETHYLENE
D1	8-719-901-33	DIODE 1SS113
D2	8-719-901-33	DIODE 1SS113
D3	8-719-101-13	DIODE SD113
D4	8-719-918-97	DIODE SLP153B-40
D5	8-719-918-98	DIODE SLP253B-40
D301	8-719-911-19	DIODE 1SS119
D302	8-719-911-19	DIODE 1SS119
D303	8-719-911-06	DIODE 1SS106
D304	8-719-911-19	DIODE 1SS119
D305	8-719-911-19	DIODE 1SS119
D306	8-719-911-19	DIODE 1SS119
D308	8-719-918-97	DIODE SLP153B-40
D401	8-719-902-35	DIODE SLP235B
D402	8-719-902-35	DIODE SLP235B
D403	8-719-912-45	DIODE SLP435B
D404	8-719-901-35	DIODE SLP135B
D601	8-719-901-33	DIODE 1SS113
D602	8-719-901-33	DIODE 1SS113
D603	8-719-901-33	DIODE 1SS113
D604	8-719-901-33	DIODE 1SS113
D605	8-719-100-33	DIODE RD7.5EB1
D606	8-719-901-33	DIODE 1SS113
D607	8-719-901-33	DIODE 1SS113
D608	8-719-901-33	DIODE 1SS113
D609	8-719-100-29	DIODE RD5.1EB1
D610	8-719-901-33	DIODE 1SS113
D614	8-719-901-33	DIODE 1SS113
D701	8-719-502-20	DIODE S2VB20
D901	8-719-800-08	DIODE TLR213
FL1	1-231-892-00	FILTER, BANDPASS
FL2	1-235-221-00	FILTER, LOW PASS

ELECTRICAL PARTS

Ref.No.	Part No.	Description
HE101	8-825-516-20	HEAD, REC/PB ERASE (EPP266-3602)
HRP101	8-825-516-20	HEAD, REC/PB ERASE (EPP266-3602)
IC1	8-759-801-24	IC LA1260S
IC2	8-759-200-62	IC TA7343P
IC101	8-759-801-23	IC LA3600
IC102	8-759-841-25	IC LA4125
IC201	8-759-801-23	IC LA3600
IC202	8-759-841-25	IC LA4125
IC301	8-759-800-66	IC LA3161
IC302	8-759-300-32	IC HA12047
IC303	8-759-800-71	IC LA2010
IC601	8-759-202-58	IC TC9310N-049
J301	1-561-332-00	JACK, PIN 4P
J302	1-507-678-00	JACK (MIXING MIC)
J303	1-536-834-11	TERMINAL BOARD (SPEAKER)
J304	1-507-806-00	JACK, HEADPHONES
J305	1-507-954-11	JACK, EXTERNAL POWER (DC IN 9V)
L1	1-425-349-00	COIL,FM RF
L2	1-410-012-21	MICRO INDUCTOR 1.8UH
L3	1-405-818-00	COIL, FM OSC
L4	1-402-105-11	ANTENNA, FERRITE-ROD (AM)
L101	1-408-928-00	MICRO INDUCTOR 22MMH
L102	1-408-922-00	MICRO INDUCTOR 6.8MMH
L103	1-459-434-00	COIL, VARIABLE (22MMH)
L104	1-408-159-00	MICRO INDUCTOR 3.3UH
L201	1-408-928-00	MICRO INDUCTOR 22MMH
L202	1-408-922-00	MICRO INDUCTOR 6.8MMH
L203	1-459-434-00	COIL, VARIABLE (22MMH)
L204	1-408-159-00	MICRO INDUCTOR 3.3UH
L301	1-408-080-00	MICRO INDUCTOR 100UH
L601	1-408-579-00	MICRO INDUCTOR 220UH
PM901	1-454-351-00	SOLENOID, PLUNGER
PM902	1-454-351-00	SOLENOID, PLUNGER
PM903	1-454-352-00	SOLENOID, PLUNGER
PS301⚠	1-532-685-00	LINK, IC
PS302⚠	1-532-685-00	LINK, IC
Q1	8-729-119-32	TRANSISTOR 2SK193-E
Q2	8-729-883-92	TRANSISTOR 2SC2839-E
Q3	8-729-672-42	TRANSISTOR 2SC2724-C
Q4	8-729-802-12	TRANSISTOR 2SC2840-DL
Q5	8-729-606-33	TRANSISTOR 2SC2603-F
Q101	8-729-606-33	TRANSISTOR 2SC2603-F

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The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
Q102	8-729-606-33	TRANSISTOR 2SC2603-F			
Q103	8-729-606-33	TRANSISTOR 2SC2603-F			
Q104	8-729-606-33	TRANSISTOR 2SC2603-F			
Q105	8-729-606-33	TRANSISTOR 2SC2603-F			
Q201	8-729-606-33	TRANSISTOR 2SC2603-F			
Q202	8-729-606-33	TRANSISTOR 2SC2603-F			
Q203	8-729-606-33	TRANSISTOR 2SC2603-F			
Q204	8-729-606-33	TRANSISTOR 2SC2603-F			
Q205	8-729-606-33	TRANSISTOR 2SC2603-F			
Q301	8-729-245-84	TRANSISTOR 2SC2458L-GR			
Q303	8-729-801-45	TRANSISTOR 2SC3064-F			
Q304	8-729-606-33	TRANSISTOR 2SC2603-F			
Q305	8-729-606-33	TRANSISTOR 2SC2603-F			
Q306	8-729-800-83	TRANSISTOR 2SB808-H1			
Q307	8-729-606-33	TRANSISTOR 2SC2603-F			
Q308	8-729-204-83	TRANSISTOR 2SA1048-GR			
Q601	8-729-606-33	TRANSISTOR 2SC2603-F			
Q602	8-729-606-33	TRANSISTOR 2SC2603-F			
Q603	8-729-606-33	TRANSISTOR 2SC2603-F			
Q604	8-729-606-33	TRANSISTOR 2SC2603-F			
Q605	8-729-606-33	TRANSISTOR 2SC2603-F			
Q606	8-729-606-33	TRANSISTOR 2SC2603-F			
Q607	8-729-288-02	TRANSISTOR 2SD880-GR			
Q608	8-729-177-32	TRANSISTOR 2SD773-4			
Q609	8-729-802-66	TRANSISTOR 2SK184-BL			
Q901	8-729-178-55	TRANSISTOR 2SC2785-E			
Q902	8-729-101-13	TRANSISTOR PH103-L			
R1	1-247-831-00	CARBON	1K	5%	1/6W
R2	1-247-827-00	CARBON	680	5%	1/6W
R3	1-247-843-00	CARBON	3.3K	5%	1/6W
R4	1-247-899-00	CARBON	680K	5%	1/6W
R5	1-247-819-00	CARBON	330	5%	1/6W
R6	1-247-827-00	CARBON	680	5%	1/6W
R7	1-247-819-00	CAR8ON	330	5%	1/6W
R8	1-247-819-00	CARBON	330	5%	1/6W
R9	1-247-827-00	CARBON	680	5%	1/6W
R10	1-247-889-00	CARBON	270K	5%	1/6W
R11	1-247-807-00	CARBON	100	5%	1/6W
R12	1-247-845-00	CARBON	3.9K	5%	1/6W
R13	1-247-875-00	CARBON	68K	5%	1/6W
R14	1-247-807-00	CARBON	100	5%	1/6W
R15	1-247-879-00	CARBON	100K	5%	1/6W
R16	1-247-879-00	CARBON	100K	5%	1/6W
R17	1-247-835-00	CARBON	1.5K	5%	1/6W
R18	1-247-855-00	CARBON	10K	5%	1/6W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R19	1-247-831-00	CARBON	1K	5%	1/6W
R20	1-247-855-00	CARBON	10K	5%	1/6W
R21	1-247-851-00	CARBON	6.8K	5%	1/6W
R22	1-247-849-00	CARBON	5.6K	5%	1/6W
R23	1-247-823-00	CARBON	470	5%	1/6W
R24	1-247-799-00	CARBON	47	5%	1/6W
R25	1-247-831-00	CARBON	1K	5%	1/6W
R26	1-247-847-00	CARBON	4.7K	5%	1/6W
R27	1-247-831-00	CARBON	1K	5%	1/6W
R28	1-247-855-00	CARBON	10K	5%	1/6W
R29	1-247-833-00	CARBON	1.2K	5%	1/6W
R30	1-247-887-00	CARBON	220K	5%	1/6W
R31	1-247-843-00	CARBON	3.3K	5%	1/6W
R32	1-247-843-00	CARBON	3.3K	5%	1/6W
R33	1-247-839-00	CARBON	2.2K	5%	1/6W
R34	1-247-839-00	CARBON	2.2K	5%	1/6W
R35	1-247-845-00	CARBON	3.9K	5%	1/6W
R36	1-247-845-00	CARBON	3.9K	5%	1/6W
R37	1-247-795-00	CARBON	33	5%	1/6W
R38	1-247-807-00	CARBON	100	5%	1/6W
R101	1-247-807-00	CARBON	100	5%	1/6W
R102	1-247-881-00	CARBON	120K	5%	1/6W
R103	1-247-819-00	CARBON	330	5%	1/6W
R104	1-247-843-00	CARBON	3.3K	5%	1/6W
R105	1-247-879-00	CARBON	100K	5%	1/6W
R106	1-247-873-00	CARBON	56K	5%	1/6W
R107	1-247-851-00	CARBON	6.8K	5%	1/6W
R108	1-247-861-00	CARBON	18K	5%	1/6W
R109	1-247-855-00	CARBON	10K	5%	1/6W
R110	1-247-843-00	CARBON	3.3K	5%	1/6W
R111	1-247-871-00	CARBON	47K	5%	1/6W
R112	1-247-850-00	CARBON	6.2K	5%	1/6W
R113	1-247-879-00	CARBON	100K	5%	1/6W
R114	1-247-855-00	CARBON	10K	5%	1/6W
R115	1-247-847-00	CARBON	4.7K	5%	1/6W
R116	1-247-899-00	CARBON	680K	5%	1/6W
R117	1-247-839-00	CARBON	2.2K	5%	1/6W
R118	1-247-829-00	CARBON	820	5%	1/6W
R119	1-247-847-00	CARBON	4.7K	5%	1/6W
R120	1-247-885-00	CARBON	180K	5%	1/6W
R121	1-247-857-00	CARBON	12K	5%	1/6W
R122	1-247-861-00	CARBON	18K	5%	1/6W
R123	1-247-839-00	CARBON	2.2K	5%	1/6W
R124	1-247-819-00	CARBON	330	5%	1/6W
R125	1-247-899-00	CARBON	680K	5%	1/6W

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ELECTRICAL PARTS

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R127	1-247-831-00	CARBON	1K	5%	1/6W
R129	1-247-767-00	CARBON	2.2	5%	1/6W
R130	1-247-767-00	CARBON	2.2	5%	1/6W
R131	1-247-807-00	CARBON	100	5%	1/6W
R132	1-247-847-00	CARBON	4.7K	5%	1/6W
R136	1-247-813-00	CARBON	180	5%	1/6W
R141	1-247-851-00	CARBON	6.8K	5%	1/6W
R142	1-247-859-00	CARBON	15K	5%	1/6W
R143	1-247-879-00	CARBON	100K	5%	1/6W
R301	1-247-887-00	CARBON	220K	5%	1/6W
R302	1-247-791-00	CARBON	22	5%	1/6W
R303	1-247-829-00	CARBON	820	5%	1/6W
R304	1-247-807-00	CARBON	100	5%	1/6W
R306	1-247-799-00	CARBON	47	5%	1/6W
R307	1-247-807-00	CARBON	100	5%	1/6W
R308	1-247-839-00	CARBON	2.2K	5%	1/6W
R309	1-247-807-00	CARBON	100	5%	1/6W
R310	1-247-857-00	CARBON	12K	5%	1/6W
R311	1-247-891-00	CARBON	330K	5%	1/6W
R312	1-247-839-00	CARBON	2.2K	5%	1/6W
R313	1-247-807-00	CARBON	100	5%	1/6W
R314	1-247-899-00	CARBON	680K	5%	1/6W
R315	1-247-855-00	CARBON	10K	5%	1/6W
R316	1-247-083-00	CARBON	10	5%	1/4W
R317	1-246-441-00	CARBON	47	5%	1/4W
R318	1-247-831-00	CARBON	1K	5%	1/6W
R319	1-247-879-00	CARBON	100K	5%	1/6W
R320	1-247-807-00	CARBON	100	5%	1/6W
R321	1-247-831-00	CARBON	1K	5%	1/6W
R322	1-247-899-00	CARBON	680K	5%	1/6W
R323	1-247-851-00	CARBON	6.8K	5%	1/6W
R324	1-247-847-00	CARBON	4.7K	5%	1/6W
R325	1-247-839-00	CARBON	2.2K	5%	1/6W
R326	1-247-866-00	CARBON	30K	5%	1/6W
R327	1-247-867-00	CARBON	33K	5%	1/6W
R328	1-247-851-00	CARBON	6.8K	5%	1/6W
R329	1-247-839-00	CARBON	2.2K	5%	1/6W
R330	1-247-871-00	CARBON	47K	5%	1/6W
R331	1-247-839-00	CARBON	2.2K	5%	1/6W
R332	1-247-823-00	CARBON	470	5%	1/6W
R333	1-247-835-00	CARBON	1.5K	5%	1/6W
R334	1-247-835-00	CARBON	1.5K	5%	1/6W
R335	1-247-831-00	CARBON	1K	5%	1/6W
R336	1-247-831-00	CARBON	1K	5%	1/6W
R337	1-247-831-00	CARBON	1K	5%	1/6W
R338	1-247-831-00	CARBON	1K	5%	1/6W
R339	1-247-807-00	CARBON	100	5%	1/6W
R340	1-247-B31-00	CARBON	1K	5%	1/6W
R341	1-247-823-00	CARBON	470	5%	1/6W
R401	1-247-835-00	CARBON	1.5K	5%	1/6W
R601	1-247-866-00	CARBON	30K	5%	1/6W
R602	1-247-839-00	CARBON	2.2K	5%	1/6W
R603	1-247-855-00	CARBON	10K	5%	1/6W
R604	1-247-855-00	CARBON	10K	5%	1/6W
R606	1-247-829-00	CARBON	820	5%	1/6W
R607	1-247-829-00	CARBON	820	5%	1/6W
R608	1-247-829-00	CARBON	820	5%	1/6W
R609	1-247-855-00	CARBON	10K	5%	1/6W
R610	1-247-847-00	CARBON	4.7K	5%	1/6W
R611	1-247-847-00	CARBON	4.7K	5%	1/6W
R612	1-247-847-00	CARBON	4.7K	5%	1/6W
R613	1-247-825-00	CARBON	560	5%	1/6W
R614	1-247-807-00	CARBON	100	5%	1/6W
R615	1-247-871-00	CARBON	47K	5%	1/6W
R616	1-247-871-00	CARBON	47K	5%	1/6W
R617	1-247-831-00	CARBON	1K	5%	1/6W
R618	1-247-831-00	CARBON	1K	5%	1/6W
R901	1-247-843-00	CARBON	3.3K	5%	1/6W
R902	1-247-863-00	CARBON	22K	5%	1/6W
R903	1-247-843-00	CARBON	3.3K	5%	1/6W
R904	1-247-825-00	CARBON	560	5%	1/6W
R905	1-247-815-00	CARBON	220	5%	1/6W
RV1	1-226-235-00	RES, ADJ, CARBON 5K			
RV101	1-226-433-00	RES, ADJ, CARBON 50K			
RV102	1-226-432-00	RES, ADJ, CARBON 20K			
RV103	1-226-434-00	RES, ADJ, CARBON 100K			
RV104	1-230-462-11	RES, VAR, SLIDE 100K/100K			
RV105	1-230-462-11	RES, VAR, SLIDE 100K/100K			
RV106	1-230-462-11	RES, VAR, SLIDE 100K/100K			
RV107	1-230-462-11	RES, VAR, SLIDE 100K/100K			
RV108	1-230-462-11	RES, VAR, SLIDE 100K/100K			
RV109	1-230-461-11	RES, VAR, SLIDE 20K (VOLUME)			
RV201	1-226-433-00	RES, ADJ, CARBON 50K			
RV202	1-226-432-00	RES, ADJ, CARBON 20K			
RV203	1-226-434-00	RES, ADJ, CARBON 100K			
RV209	1-230-461-11	RES, VAR, SLIDE 20K (VOLUME)			

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ELECTRICAL PARTS

Ref.No.	Part No.	Description
S1	1-554-892-11	SWITCH, LEVER SLIDE, BAND SELECT
S301 ⚠	1-570-001-11	SWITCH, PUSH (1 KEY), POWER
S302 ⚠	1-552-844-12	SWITCH, SLIDE, AC/DC
S303	1-554-888-11	SWITCH, SLIDE, FUNCTION
S304	1-554-887-11	SWITCH, LEVER SLIDE, TAPE SELECT
S305	1-554-891-11	SWITCH, PUSH (1 KEY), DOLBY NR
S306	1-554-889-11	SWITCH, PUSH (1 KEY)
S307	1-554-061-00	SWITCH, SLIDE (ISS)
S401	1-553-856-00	SWITCH, KEY BOARD, REW
S402	1-553-856-00	SWITCH, KEY BOARD, REW
S403	1-553-856-00	SWITCH, KEY BOARD, STOP
S404	1-553-856-00	SWITCH, KEY BOARD, FWD
S405	1-553-856-00	SWITCH, KEY BOARD, FF
S406	1-553-856-00	SWITCH, KEY BOARD, PAUSE
S407	1-553-856-00	SWITCH, KEY BOARD, REC
S408	1-553-856-00	SWITCH, KEY BOARD, REC MUTE
S601	1-554-798-21	SWITCH, SLIDE, TIMER
S602	1-554-893-11	SWITCH, LEAF
S603	1-554-889-11	SWITCH, PUSH (1 KEY), DIRECTION MODE
S901	1-554-929-11	SWITCH, LEAF
S902	1-554-929-11	SWITCH, LEAF
SP101	1-503-364-11	SPEAKER
SP201	1-503-364-11	SPEAKER
T1	1-404-249-00	COIL, FM
T2	1-406-040-00	COIL (OSC)
T3	1-404-552-11	TRANSFORMER, IF
T701 ⚠	1-447-934-11	TRANSFORMER, POWER

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

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Sony Corporation

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CFS-7000

SERVICE MANUAL

US Model
Canadian Model

SUPPLEMENT

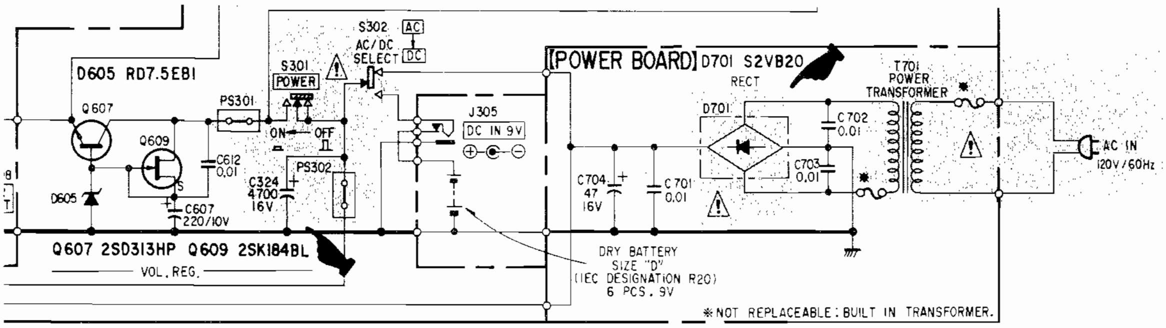
No. 1
September, 1984

SUBJECT: ADDITIONS OF SAFETY-RELATED CRITICAL COMPONENTS TO SCHEMATIC DIAGRAM AND PARTS LIST

File this supplement with the service manual.

- ☛ : corrected portions

Page 32: SCHEMATIC DIAGRAM



S302 AC
AC/DC
SELECT DC
S301
POWER
D605 RD7.5EB1
Q607
Q609
PS301
ON OFF
C612 0.01
C324 4700 16V
PS302
D605
C607 220/10V
J305
DC IN 9V
[POWER BOARD]
D701 S2VB20
RECT
D701
C702 0.01
C703 0.01
C704 47 16V
C701 0.01
T701 POWER TRANSFORMER
AC IN 120V/60Hz
Q607 2SD313HP Q609 2SK184BL
VOL. REG.
DRY BATTERY SIZE "D" (IEC DESIGNATION R20) 6 PCS. 9V
*NOT REPLACEABLE: BUILT IN TRANSFORMER.

Pages 43 and 44: PARTS LIST

ELECTRICAL PARTS

Ref. No.		*Part No.*	*Description*			
C324	⚠	1-123-327-00	ELECT	4700MF	20%	16V
D701	⚠	8-719-502-20	DIODE	S2VB20		

FM/AM STEREO CASSETTE-CORDER

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